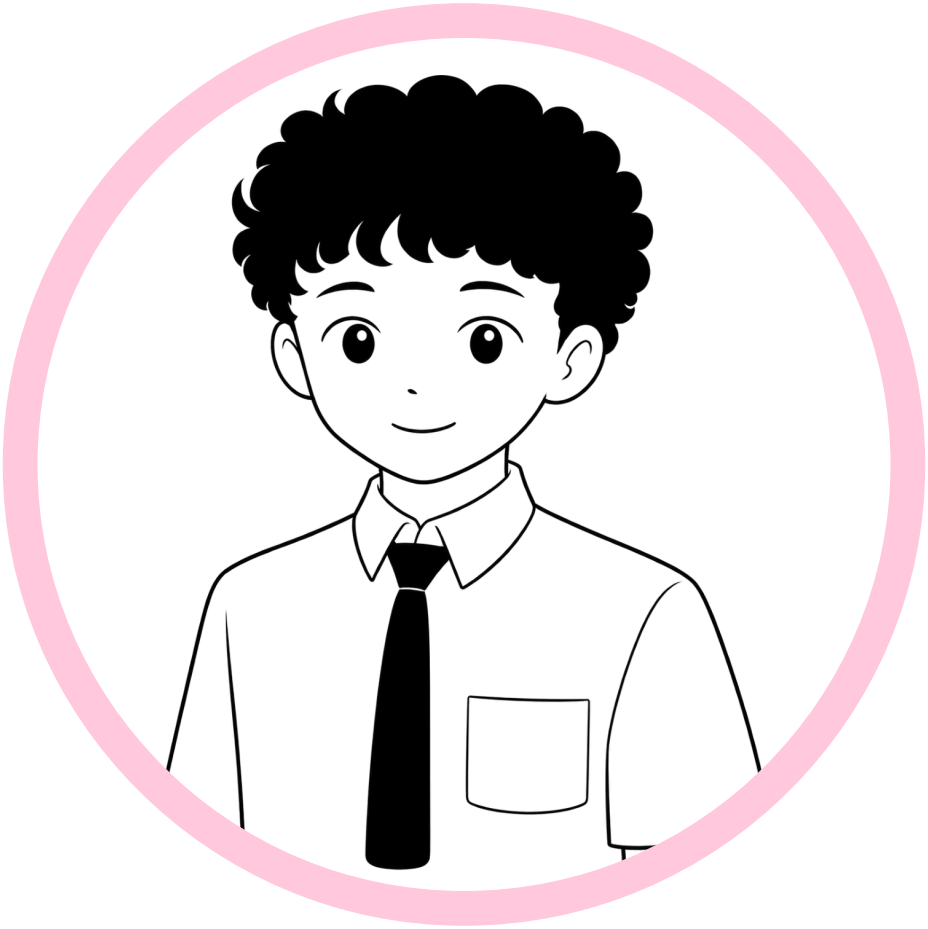
AQA A-LEVEL PSYCHOLOGY · 7182

PSYCHOLOGY



MARK SCHEME

3.2.3.1 SAMPLING

SCORE	PERCENTAGE
/251	%

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Q1.

(a) **[AO2 = 2]**

1 mark for identifying an appropriate type of observation from the following: naturalistic or covert or nonparticipant.

1 mark for relevant justification in this study.

Possible applications:

- it was carried out in the school canteen which was the normal environment for the students
- the teacher did not place the recycle bins in the canteen they had already been placed there
- the teacher was hidden from view of the students
- the students didn't know they were being observed
- the teacher observed from a distance and did not interact with the students.

2

(b) **[AO2 = 2]**

2 marks for relevant explanation of event sampling applied to the scenario, e.g. the teacher recorded each time one of the three types of item was recycled.

1 mark for naming event sampling or limited / muddled explanation

2

(c) **[AO3 = 4]**

Possible content:

Age

- it suggests that younger children are likely to recycle more than other children **(1 mark)**. More year 7-9 (than any other age group) recycled for all of the categories (cardboard, plastic and food) **(1 mark)**

or

- it suggests that older children are least likely to recycle **(1 mark)**. Fewer year 12-13 students recycled any of the items (cardboard, plastic or food) **(1 mark)**

Plus

Type of item:

- it suggests that children are most likely to recycle plastic **(1 mark)**. More children in each age group recycled plastic (than any of the other items) **(1 mark)**

or

- it suggests that children are least likely to recycle food **(1 mark)**. Fewer children recycled food (compared to all other items) for all age groups **(1 mark)**

Accept other possible suggestions / conclusions that apply to the data e.g. children do seem to recycle or that are derived from totalling the data. Credit the implications of these findings.

4

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(d) **[AO3 = 2]**

2 marks for a clear, coherent explanation of an appropriate improvement with some details e.g. more locations, more lunch times, more observers, further ethical considerations

1 mark for brief / muddled / limited explanation.

Accept other appropriate explanations that are linked to the design.

2

[10]

Q2.

(a) **[AO2 = 2]**

2 marks for a clear explanation of why it was important to match the students for this variable.

1 mark for a limited or muddled explanation, or for an answer without application.

Content:

- level of interest could affect their satisfaction scores so needs to be controlled; matching students' levels of interest in business studies keeps this participant variable constant.

2

(b) **[AO2 = 2]**

1 mark for a suggestion of an appropriate variable – interest in using computers (e.g., for studying), past experience of using computers (e.g., for studying), disability issues, prior knowledge of this business studies topic.

Accept other appropriate suggestions.

1 mark for an explanation of how it might relate to satisfaction scores.

2

(c) **[AO2 = 2]**

2 marks for a clear outline of one benefit of random allocation in this situation.

1 mark for a limited or muddled explanation, or for an answer without application.

Relevant points:

- removal of researcher bias in determining which participant has the most to least number of online hours
- increased validity as the researcher will not be biased in how students are allocated
- removal of participant bias as each participant has the same chance of having a particular number of online hours as any other participant.

2

(d) **[AO3 = 3]**

3 marks for a clear and coherent explanation of how stratified sampling would

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improve the design.

2 marks for some explanation of how stratified sampling would improve the design.

1 mark for a muddled / limited explanation.

Content:

- stratified sampling ensures each identified sub group of the whole target population of possible participants is represented in the sample so generalisation of the results to the target population is more valid than if the participants were just available at the time of asking
- stratified sampling is an improvement because people who are identified by opportunity are likely to be present at same time, doing similar things, possibly of similar personality types etc which may limit representativeness of sample.

Accept other appropriate explanation points.

3

(e) **[AO2 = 1]**

1 mark for a question which would generate qualitative data: what did you like / dislike about the online / classroom lessons?

Accept any appropriate question or item that generates qualitative data.

1

(f) **[AO2 = 2]**

2 marks for a clear and coherent explanation of a possible problem.

1 mark for a muddled / limited explanation.

Possible problems:

- analysis of qualitative data relies on interpretation by the researcher which could be inaccurate / biased / subjective
- qualitative data may not be easy to categorise / collate into a sensible number of answer types
- the researcher could be left with lots of individual responses that cannot be summarised.

Do not accept answers which simply identify a problem with no further appropriate elaboration e.g. ‘hard to analyse’, ‘time consuming’.

2

(g) **[AO2 = 1]**

1 mark for an outline of an appropriate ethical issue that would be relevant when using a questionnaire: issues such as anonymity, protection from harm, treating with respect, parental consent.

Possible issues:

- the students should be treated with respect by explaining that their answers will be kept confidential
- the students must be assured that they can withdraw their answers if they want to

- the students must be told exactly what the researcher was trying to find out about the relationship between satisfaction and the way information was delivered.

Answer must be an outline and not just a name or term.

1

(h) **[AO2 = 4]**

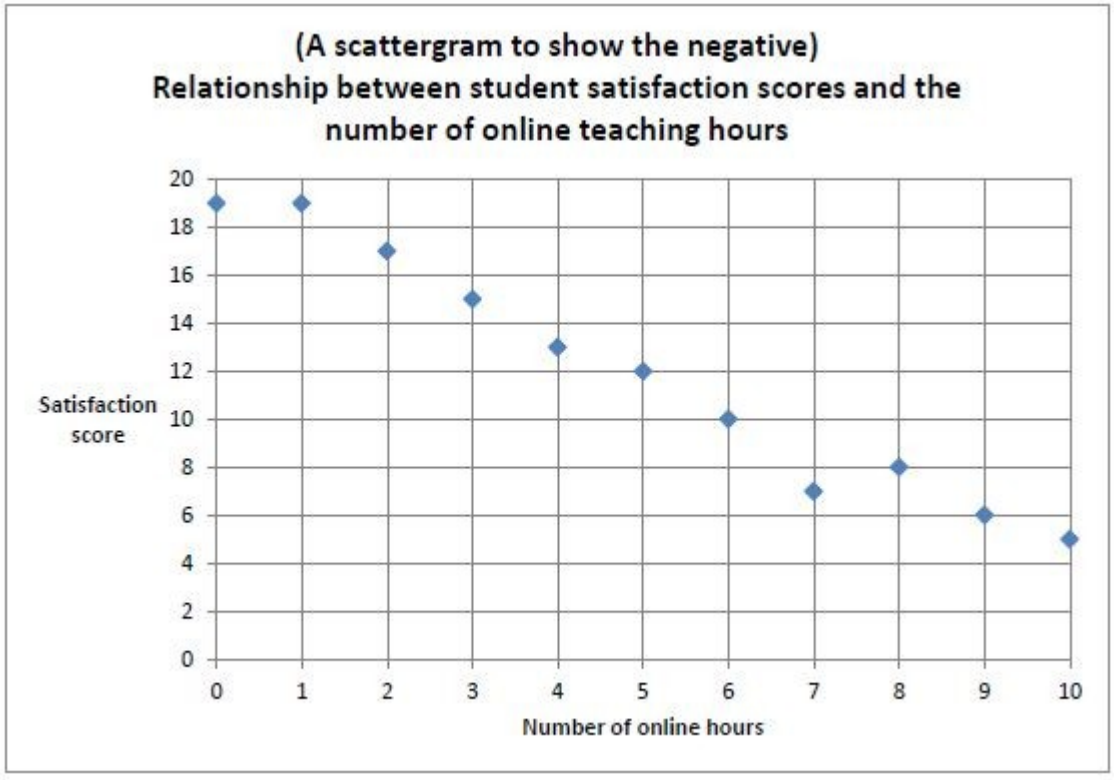
Award **1 mark** for each of the following points.

Content:

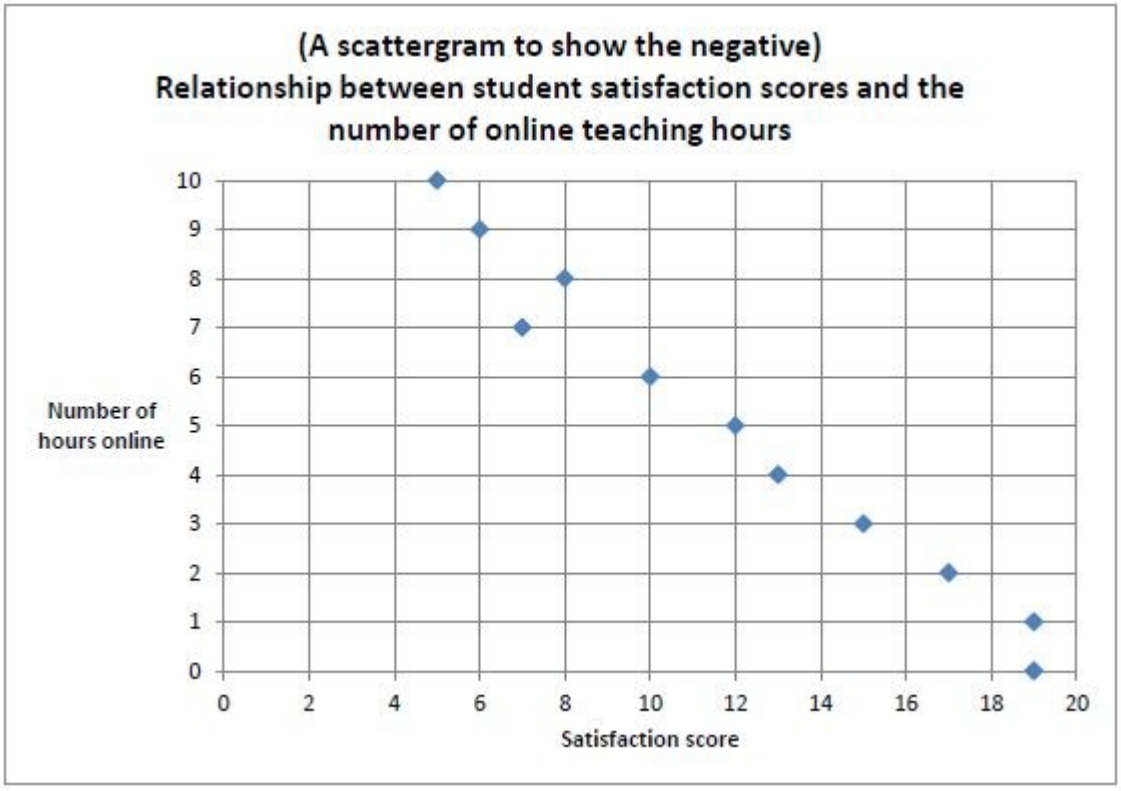
- appropriate title, including reference to (negative) relationship and the two variables
- axis 1 – number of online hours and suitable scale 0-10
- axis 2 – satisfaction score and suitable scale 0-20
- accurate plotting of 11 points on scattergram.

No penalty for drawing a line of best fit.

If display is not a scattergram award max 1 mark if title is appropriate.



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4

(i) **[AO2 = 2]**

1 mark for saying there is a negative relationship / correlation (between the number of online hours and satisfaction scores).

1 mark for further detail e.g. the **more** hours they have online the **less** they are satisfied with the course (or vice versa), however this does not indicate a cause and effect relationship.

Accept other valid conclusions.

2

(j) **[AO2 = 2]**

1 mark for the mode = 19

1 mark for the median = 12

2

(k) **[AO2 = 2]**

2 marks for a clear and coherent explanation.

1 mark for a muddled or limited explanation.

- The median is more representative than the mode because the mode is at the top end of the set of scores, whereas more of the scores are numerically closer to the median.

Accept other explanations, for example, in terms suitability in relation to ordinal data vs nominal data.

2

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(l) **[AO1 = 1]**

1 mark for B

1

[24]

Q3.

(a) **[AO2 = 4]**

1 mark for **each** of the following:

- identify strata / sub-groups in their population, e.g. the four different schools
- calculate the required proportion from each stratum based on the proportion in the population
- select sample at random from each school / stratum / sub-group
- use a random selection method, e.g. assign each student a number then use a computer, calculator or random number table to select specified number of numbers between 0 and X (or hat method).

Credit answers based on other strata / sub-groups, e.g. male and female etc.
3rd and 4th bullet point can only be credited if preceded by strata and proportionality.

4

(b) **[AO3 = 4]**

For **each** suggestion, award marks as follows:

2 marks for a detailed, coherent, relevant suggestion

1 mark for a brief or muddled, relevant suggestion

0 marks for just naming an ethical issue

Possible content:

- confidentiality: advise students that their data is to be kept confidential so their individual responses will not be identifiable and will not be accessible to anyone other than the researchers / their agents
- withdrawal of data: ensure students are told they have the right to withdraw their data after the event even if they consented to the survey and were aware of the aim at the start
- protection from harm: ensure that no one has been upset or offended by questions on the survey, e.g. if they were felt to be intrusive or offensive, or upset by feelings aroused during the survey. If so, then discuss that these feelings are normal etc
- debrief: explain the full purpose / aim of the survey, check again that they are willing to allow their data to be used.

Answers may be verbatim or as above.
Can gain full credit without naming the issue.
Credit other relevant suggestions consistent with BPS guidelines.

4

(c) **[AO1 = 3 AO2 = 2 AO3 = 3]**

Level	Mark	Description
4	7-8	Knowledge of the attachment theory explanation

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		for parasocial relationships is accurate with some detail. Application is effective. Discussion is thorough and effective. Minor detail and / or expansion of argument is sometimes lacking. The answer is clear, coherent and focused. Specialist terminology is used effectively.
3	5-6	Knowledge of the attachment theory explanation for parasocial relationships is evident but there are occasional inaccuracies / omissions. Application and / or discussion is mostly effective. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately.
2	3-4	Limited knowledge of the attachment theory explanation for parasocial relationships is present. Focus is mainly on description. Any application / discussion is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1-2	Knowledge of the attachment theory explanation for parasocial relationships is very limited. Discussion / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Possible content:

- parasocial relationships can be linked to attachment problems in childhood (insecure-resistant type)
- characteristics of parasocial relationships as linked to attachment e.g. protest at loss of attachment figure
- Bowlby's noted that failure to attach / poor attachment / insecure attachment led to late problems, e.g. affectionless behaviour, poor internal working model of relationships, delinquency etc
- people with childhood attachment problems form parasocial relationships to meet their need for attachment / affection
- such relationships do not involve same fear of rejection as real-life relationships
- knowledge of theory embedded in evidence.

Possible application:

- according to attachment theory students who reported happy / secure childhood would have positive relationships with friends
- these students would also be less interested in celebrities because they did not have an unfulfilled need for attachment.

Credit the same ideas expressed in the opposite way i.e. students who reported

unhappy / insecure childhood.

Possible discussion points:

- use of evidence to support/refute the attachment theory explanation
- problem of establishing validity of retrospective information about childhood relationships
- parasocial relationships can be positive and are not just about fulfilling attachment, e.g. safe exploration of emotions etc
- implications of accepting the attachment explanation
- discussion in the context of levels of parasocial relationships and other theories, e.g. absorption-addiction model.

Credit other relevant material.

8

[16]

Q4.

(a) **[AO2 = 4]**

1 mark for **each** of the following:

- identify strata / sub-groups in their population, e.g. the four different schools
- calculate the required proportion from each stratum based on the proportion in the population
- select sample at random from each school / stratum / sub-group
- use a random selection method, e.g. assign each student a number then use a computer, calculator or random number table to select specified number of numbers between 0 and X (or hat method).

Credit answers based on other strata / sub-groups, e.g. male and female etc. 3rd and 4th bullet point can only be credited if preceded by strata and proportionality.

4

(b) **[AO3 = 4]**

For **each** suggestion, award marks as follows:

2 marks for a detailed, coherent, relevant suggestion

1 mark for a brief or muddled, relevant suggestion

0 marks for just naming an ethical issue

Possible content:

- confidentiality: advise students that their data is to be kept confidential so their individual responses will not be identifiable and will not be accessible to anyone other than the researchers / their agents
- withdrawal of data: ensure students are told they have the right to withdraw their data after the event even if they consented to the survey and were aware of the aim at the start
- protection from harm: ensure that no one has been upset or offended by questions on the survey, e.g. if they were felt to be intrusive or offensive, or upset by feelings aroused during the survey. If so, then discuss that these feelings are normal etc
- debrief: explain the full purpose / aim of the survey, check again that they are

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willing to allow their data to be used.

Answers may be verbatim or as above.

Can gain full credit without naming the issue.

Credit other relevant suggestions consistent with BPS guidelines.

4

(c) **[AO1 = 3 AO2 = 2 AO3 = 3]**

Level	Mark	Description
4	7-8	Knowledge of Bem's research into androgyny is accurate with some detail. Application is effective. Discussion is thorough and effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear, coherent and focused. Specialist terminology is used effectively.
3	5-6	Knowledge of Bem's research into androgyny is evident but there are occasional inaccuracies / omissions. Application and / or discussion is mostly effective. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately.
2	3-4	Limited knowledge of Bem's research into androgyny is present. Focus is mainly on description. Any application / discussion is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1-2	Knowledge of Bem's research into androgyny is very limited. Discussion / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Possible content:

- Bem devised the Sex Role Inventory as a measure of androgyny
- BSRI consists of 60 characteristics or traits on which respondents rate themselves on a 7-point scale
- scores translate to two dimensions – masculinity-femininity, androgynous-unclassified
- Bem suggested people who are highly androgynous are more psychologically healthy / have greater mental wellbeing than people who are strongly masculine, strongly feminine or undifferentiated
- description of relevant evidence.

Possible application:

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According to Bem, students who get a higher androgyny score on the scale should report:

- more positive feelings about themselves and higher self-worth / self-esteem
- relationships with others as more positive / satisfactory.

Credit the same ideas expressed in the opposite way, i.e. students who score lower on the androgyny scale.

Possible discussion points:

- origins and validity of the BSRI – scientifically established relevant traits using a large sample and has test-retest reliability
- BRSI score is an oversimplification – other aspects of life need consideration, e.g. work role, abilities, etc
- being androgynous is not necessarily always positive – a person high in androgyny might possess negative traits, e.g. be excessively competitive
- modification to Bem's original – the addition of undifferentiated type
- social changes, e.g. in typically male and female roles may mean that the BRSI is out-dated
- use of evidence to support / refute BEM's theory about psychological health, e.g. other studies show that a high masculinity score is more healthy
- practical applications e.g. awareness of gender stereotyping.

Credit other relevant material.

8

[16]

Q5.

(a) **[AO2 = 4]**

1 mark for **each** of the following:

- identify <u>strata / sub-groups</u> in their population, e.g. the four different schools
- calculate the required <u>proportion</u> from each stratum based on the proportion in the population
- select sample at <u>random</u> from each school / stratum / sub-group
- use a <u>random selection method,</u> e.g. assign each student a number then use a computer, calculator or random number table to select specified number of numbers between 0 and X (or hat method).

Credit answers based on other strata / sub-groups, e.g. male and female etc.
3rd and 4th bullet point can only be credited if preceded by strata and proportionality.

4

(b) **[AO3 = 4]**

For **each** suggestion, award marks as follows:

2 marks for a detailed, coherent, relevant suggestion

1 mark for a brief or muddled, relevant suggestion

0 marks for just naming an ethical issue

Possible content:

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- confidentiality: advise students that their data is to be kept confidential so their individual responses will not be identifiable and will not be accessible to anyone other than the researchers / their agents
- withdrawal of data: ensure students are told they have the right to withdraw their data after the event even if they consented to the survey and were aware of the aim at the start
- protection from harm: ensure that no one has been upset or offended by questions on the survey, e.g. if they were felt to be intrusive or offensive, or upset by feelings aroused during the survey. If so, then discuss that these feelings are normal etc
- debrief: explain the full purpose / aim of the survey, check again that they are willing to allow their data to be used.

Answers may be verbatim or as above.

Can gain full credit without naming the issue.

Credit other relevant suggestions consistent with BPS guidelines.

4

(c) **[AO1 = 3 AO2 = 2 AO3 = 3]**

Level	Mark	Description
4	7-8	Knowledge of Vygotsky's theory is accurate with some detail. Application is effective. Discussion is thorough and effective. Minor detail and / or expansion of argument is sometimes lacking. The answer is clear, coherent and focused. Specialist terminology is used effectively.
3	5-6	Knowledge of Vygotsky's theory is evident but there are occasional inaccuracies / omissions. Application and/or discussion is mostly effective. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately.
2	3-4	Limited knowledge of Vygotsky's theory is present. Focus is mainly on description. Any application / discussion is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1-2	Knowledge of Vygotsky's theory is very limited. Discussion / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Possible content:

- social interaction / culture are key to cognitive development – child internalises

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understanding of others
- child as an apprentice who develops tools of a culture, e.g. language, use of technology
- language has an important role: external speech leads to inner speech leads to internalised thought
- emphasises scaffolding – more knowledgeable others / experts act as supportive framework, later withdrawn
- zone of proximal development – gap between what can be achieved alone and what can be achieved with help
- knowledge of theory embedded in evidence.

Possible application:

- students might say they learned better with help / scaffolding from teacher / peers
- students might be able to go beyond their current level of attainment with help (move through ZPD)
- students might describe how they can eventually succeed alone – the scaffolding framework can be removed
- according to Vygotsky, students should learn better in activities that involve scaffolding, e.g. peer tutoring, pair work, teacher demonstration, use of writing frames, etc.

Possible discussion points:

- use of evidence to support / refute Vygotsky's theory about cognitive development, e.g. evidence for improved performance with scaffolding or evidence that shows tutoring does not accelerate learning
- cross cultural differences in concept development show that understanding depends on social interaction / cultural experience
- comparison with other theories of cognitive development, e.g. Piaget's view on the role of language / child as scientist
- assumes all children learn better with social interaction – some children prefer to learn alone.

Credit other relevant material.

8

[16]

Q6.

(a) **[AO2 = 2]**

2 marks for explanation that a non-directional hypothesis is suitable or 'it should not be directional,' (1) as there is no reference to evidence that allows the psychologist to predict the direction of the results (1).

1 mark for a muddled/limited explanation of why the hypothesis should be non-directional or 1 mark for stating non-directional/'no'.

(b) **[AO2 = 2]**

2 marks for correct answer 55(%)

1 mark for correct workings only 22/40 = 0.55 × 100

(c) **[AO3 = 2]**

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2 marks for a clear explanation of why stratified sampling might improve the study.

1 mark for a muddled/limited explanation

Relevant points:
- stratified sampling increases representation/generalisation by sampling many subsets of students
- stratified sampling reduces research bias as the subsets of students are selected randomly.

Credit other relevant answers, e.g. stratified sampling increases external validity/population validity by sampling many subsets of students, or justification through comparison with volunteer sampling.

Note: No marks for simply stating increases validity/reliability

(d) **[AO1 = 2]**

2 marks for a clear explanation of primary data.

1 mark for a muddled or limited explanation (e.g. reference to 'first hand' or focus on researcher not data).

Content
- primary data is original data/first hand response of the participants/source in the research.
- collected specifically for the research being carried out.

Credit answers that refer to the data in the study described.

Note: do not credit an answer which simply states collected by the researcher

(e) **[AO2 = 2]**

2 marks for identification and a clear explanation of one reason why the mean is the most appropriate measure of central tendency.

1 mark for identification of one reason.

Possible reasons:
- the mean can be said to be **representative of all the data** collected as it is calculated using all the individual values.
- the mean is the **most sensitive measure of central tendency** as it uses all the values in set of data.

Accept other valid reasons.

(f) **[AO2 = 4]**

Task A

2 marks for correct answer 63 (secs)

1 mark for correct workings only 630/10

Task B

2 marks for correct answer 77.4 (secs)

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1 mark for correct workings only 774/10

(g) **[AO3 = 3]**

3 marks for a clear and coherent discussion of the purpose of counterbalancing.

2 marks for some relevant discussion.

1 mark for a muddled/limited discussion.

Possible content:
- it controls the impact of order effects (practice, fatigue or boredom)
- allows order effects to be distributed evenly across both conditions
- making each condition of the IV occur as the first task and the second task equally
- counterbalancing does not eliminate order effects which will be present because there are two separate tasks to be completed by each person.

Note: No marks for answers which only state decreasing/reducing/eliminating/preventing order effects without reference to any of the above points.

(h) **[AO2 = 3]**

1 mark for identification of **one** appropriate extraneous variable.

Possible variables: that can be controlled and need to stay constant for all participants or from Task A to Task B to avoid affecting the dependent variable:
- level of difficulty in the two 'spot the difference tasks'
- wearing of headphones
- the music/tracks
- instructions for participants
- characteristics of the psychologist
- change in environmental conditions.

Accept other relevant variables
Do **not** accept participant variables

Possible explanations:

1 mark for elaboration of the effect of the EV.

1 mark for how it might have affected the DV (the effect on time).

(i) **[AO3 = 4]**

Level	Marks	Description
2	3 – 4	There is a clear and detailed explanation of how the second study improves on the first study. The answer is generally coherent with effective use of appropriate terminology.
1	1 – 2	There is limited or partial explanation of how the second study improves on the first study. The answer lacks coherence and use of appropriate terminology.

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	0	No relevant content.

Possible content:

- the second study is more objective. In the first study participants self-reported what they believed to be the case and this is refuted by the follow-up study
- the measurement of time allows for more detailed analysis of data
- use of experimental method involves manipulation of IV, establishing cause and effect in follow-up study which is not a feature of the self-report method used in the first study
- possibility of socially desirable answers as a feature of first study which might be unreliable and this is not present in follow-up study where measurements are more direct.

Credit other possible explanations.

Note: no marks for simply stating more valid/reliable.

Q7.

(a) **[AO2 = 2]**

2 marks for a clearly outlined disadvantage that is explicitly related to the study – sample is biased, lacking representativeness, more confident/helpful/curious which could affect how they respond to therapy or represent other offenders.

1 mark for knowledge of a disadvantage of using volunteers which could be related to the study but this is not explicitly presented.

Credit other relevant disadvantages.

(b) **[AO2 = 3]**

Award **1 mark** for each of the following points up to a maximum of 3 marks.

- All the volunteers are identified either by name or number.
- The 50 names/numbers are put in a container or computer.
- Assign alternate names/numbers drawn to Group 1 then Group 2 and so on until there are 25 in each group or alternative system **OR** set parameters for two groups of 25 to be randomly generated.

Credit alternative descriptions of a practical procedure which would result in the same outcome.

(c) **[AO2 = 3]**

3 marks for a clearly stated and appropriate non-directional (or directional) operationalised hypothesis: there is a difference in the reduction in anger scores of offenders who complete Therapy A and those who complete Therapy B.

2 marks for a statement with both conditions of the IV and the DV that lacks the clarity of the 3 mark answer.

1 mark for a muddled statement with both the IV and DV present.

0 marks for expressions of aim/questions/correlational hypotheses or statements with only the IV or DV or one condition of the IV present.

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Full credit can be awarded for a null version of the hypothesis.

(d) **[AO3 = 3]**

Award **1 mark** for any of the following points up to a maximum of 3 marks.

Possible points:

- Both therapies seem to be effective.
- The pre-therapy scores for both groups suggest that the offenders in Group 1 were more angry on average than those of Group 2 at the start of study.
- The post-therapy scores for both groups suggest that the offenders in Group 1 were more angry on average than those of Group 2 at the end of study.
- Anger scores are lower at the end of the study for both groups suggesting both therapies reduced feelings of anger.
- The improvement in Group 1 is 50-30, a decrease of 20 and in Group 2 is 40-15, a decrease of 25, which suggests that there was a greater reduction in feelings of anger in Group 2.

Credit other relevant points.

(e) **[AO3 = 4]**

Level	Marks	Description
2	3 – 4	The explanation for how matched pairs would have improved the study is clear and the answer identifies the difference in the pre-therapy scores as the issue. The answer is generally coherent with effective use of terminology.
1	1 – 2	There is limited/partial explanation for how matched pairs would have improved the study. The answer may lack coherence. Use of terminology may be either absent or inappropriate. **OR** the answer only xplains matched pairs design in the context of this study.
	0	No relevant content.

Possible points:

- The researcher wants to be sure that the final anger scores are a result of the therapy and not participant differences between the groups.
- With independent groups participant variables might have caused the lower post-therapy scores for Group 2 rather than the therapy.
- Matching the anger scores of the participants at the pre-therapy stage would reduce this difference – seen in the Group 1 median of 50 which is ten points higher than the Group 2 median of 40.
- Other variables could also affect response to therapy e.g. gender, type of offence.

N.B. Answers that only explain a matched pairs design in the context of this study cannot be awarded above level 1.

(f) **AO2 = 2 AO3 = 2**

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2 marks for a clear outline of an ethical issue that might have occurred in the study.
1 mark for a brief or muddled outline of an ethical issue that might have occurred in the study.

- In this study the participants are all in custody so despite the suggestion that they are volunteers they may have been coerced in some way to participate, this could relate to issues of consent or stress or right to withdraw.
- Distress/psychological harm such as: finding out they have high-anger scores; the questionnaire might trigger more anger; finding out there are two therapies and finding out one might be better; therapies might cause more harm than good; the participants might have some expectation that the programme would be effective and this might not be the case.
- Reducing the anger of the participants may be more beneficial for staff than the participants, manipulation of their behaviour for this reason could be unethical.

Plus
2 marks for a clear explanation of how the issue described above could be dealt with. It is expected that withdrawal of data or debriefing would be appropriate answers but these should be clearly matched with the chosen ethical issue.

1 mark for a brief or muddled explanation of how the issue could be dealt with.

Credit other relevant information.

(g) **AO2 = 1**

1 mark for knowledge of an appropriate disadvantage of the median.

Possible answers
- Any outlier values/extreme values (such as the scores of 50) would be ignored/would not form part of the average measurement.
- Less sensitive than the mean.
- It does not represent all the findings.

(h) **AO2 = 2**

2 marks for a clear explanation of how demand characteristics might have occurred in the study. The explanation will make clear that participants alter their behaviour in some way because of a belief they have about their participation in the study.

1 mark for a limited or muddled explanation that is linked to the study.

Possible points

- Participants might respond to the questionnaire with answers giving a reduction in anger as they expect the therapy is to reduce anger/they know this is what the researcher expects.
- Participants might ‘respond’ with an increase/decrease in anger in order to ‘ruin’ results.
- When the researcher gives out the questionnaire for the second time, this sets up a demand characteristic that the second answers should be different to the first answers.

Credit other relevant information.

(i) **AO3 = 2**

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2 marks for a clear discussion of one strength of using questionnaires in research which might include: the ability to collect large amounts of data relatively quickly and conveniently; discussion of how they might be easy to score/collate – when items are closed; reference to standardisation/replication of method.

1 mark for limited or muddled explanation of a possible strength.

N.B If the strength discussed relates to a particular type of questionnaire, the type of questionnaire must be made clear for the second mark.

Credit other relevant strengths.

Q8.

(a) **[AO2 = 2]**

2 marks for identification of dependent variable operationalised: number of verbal errors.

1 mark for dependent variable not operationalised: verbal errors or fluency or mistakes.

(b) **[AO2 = 3]**

3 marks for an appropriate non-directional (or directional) operationalised hypothesis:

'There is a difference in number of verbal errors made by participants who perceive / think / believe there are 5 listeners (there is a small audience) and by participants who perceive / think / believe there are 100 listeners (there is a large audience)'.

2 marks for a statement with both conditions of the IV and a DV that lacks clarity or has only one variable operationalised.

1 mark for a muddled statement with both conditions of the IV and a DV where neither variable is operationalised.

0 marks for expressions of aim / questions / correlational hypotheses or statements with only one condition.

Full credit can be awarded for a hypothesis expressed in a null form.

(c) **[AO2 = 3]**

1 mark for identification of **one** appropriate extraneous variable.

Plus

2 marks for explanation of why the variable should have been controlled – for full marks this should include clear explanation of how it would have affected the DV. Award one mark only for muddled or incomplete explanations, eg unelaborated reference to 'avoiding confounding'.

Appropriate variables: can be controlled and need to stay constant to avoid affecting the dependent variable, eg same article / conditions / instructions for each participant.

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Do not credit gender (this is controlled) or time to complete task (cannot be controlled).

(d) **[AO2 = 2]**

2 marks for clear and coherent explanation of one advantage of using a stratified sample in this study.

1 mark for a muddled answer with a relevant advantage and some explanation in relation to the study.

Possible advantage: ensures that this sample is truly representative because different types of people (males / females) working in this company are represented in the sample in the correct proportions.

Accept other relevant advantages.

(e) **[AO2 = 3]**

1 mark for each point as follows:

Manual method:

- put all 60 male names in a hat (or similar)
- determine the proportion of males needed to mirror the number of males in the target population as follows: 60%
- calculate 60% of 20 = 12 and draw out 12 names.

Random number table or computer method:

- assign each of the 60 men a number between 1 and 60
- determine the proportion of males needed to mirror the number of males in the target population as follows: 60%
- calculate 60% of 20 = 12 and moving horizontally or vertically through random number tables find 12 numbers between 1 and 60 for the sample **OR** generate 12 numbers between 1 and 60 using random number generation function on computer.

(f) **[AO2 = 4]**

Marks for a clear description of a practical way of randomly allocating the 12 men and 8 women to the two conditions as follows:

- give each man a number 1 – 12 (1 mark)
- put 12 numbers in a hat (1 mark)
- assign first six numbers drawn to Condition A with the remainder for Condition B (1 mark)
- repeat process for women – eight numbers in the hat and draw four for Condition A and remaining four go to Condition B (1 mark).

Accept other valid descriptions that would be practical and produce the same outcome.

Q9.

[AO2 = 9]

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Level	Marks	Description
3	7 – 9	Suggestions are generally well detailed and practical, showing sound understanding of design of an experiment. **All three** elements are present. There is sufficient information for most aspects of the study as required to be implemented with success. The answer is clear and coherent. Specialist terminology is used effectively. Minor detail and/or explanation sometimes lacking.
2	4 – 6	Some suggestions are appropriate but there may be a lack of detail. At least **two** elements are addressed. Implementation may be difficult given the lack of information. The answer is mostly clear and organised. There is some appropriate use of specialist terminology.
1	1 – 3	**At least** one element is addressed but knowledge of task design or dealing with participants is limited. Successful implementation would be difficult given the information provided. There is substantial inaccuracy/muddle. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Possible content:

- **The task:** the answer must show an appreciation of the fact that the usual way of merely sorting a shuffled pack of cards into suits will have to be modified in order to ensure that each participant has exactly the same task. [Initial shuffle, record the order, reinstate that order for each participant.]
- **Suitability of participants:** the answer must include information about how familiarity with cards could become a confounding variable if not controlled and how this could be controlled practically.
- **Ethical issues:** specific or more general ethical considerations as applied to this study – protection of welfare, confidentiality, respect or integrity.

Q10.

[AO3 = 4]

Up to two marks for outlining each problem. One mark for a brief point, 2nd mark for elaboration / explanation.
Possible content: problem of small sample not being representative; individual differences affecting generalisation; problem of sample generalisation including animals to humans; often difficult to represent the many different factors that characterise a population in the sample; problem of generalisability of findings from one culture to another / different cultures; general issue of subject matter being humans, thus varied and less predictable than subject matter in other sciences; generalisability across time; generalisability relating to task, context and location; relating findings from an experiment to life in the real world / beyond the immediate setting (ecological validity).
Credit use of evidence as elaboration.

Q11.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have

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changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

(a) **AO3 = 1**

Volunteer / volunteering or self-selected / self-selecting sample. 1 mark
Voluntary 0 marks.

(b) **AO3 = 2**

A limitation of a volunteer sample is that it is biased / not representative (1 mark) because some people are more likely to volunteer than others (1 mark) or the findings cannot be generalised to a population (1 mark).

1 mark for a very brief or slightly muddled explanation eg it is biased. 2nd mark for accurate elaboration. For 2 marks the answer must relate explicitly to volunteer sampling.

(c) **AO3 = 2**

IV The interview, type of interview, method of interview, 'standard interview or / and cognitive interview', whether or not cognitive interview.
DV Number of items recalled, recall, what they remembered.

(d) **AO3 = 2**

There is better control because the same film can be used in both conditions. The participants are less likely to show demand characteristics because they take part in only one condition. There are no order effects such as practice or fatigue, because participants take part in one condition. 1 mark for very brief or slightly muddled advantage. 2nd mark for accurate elaboration.
0 marks for simply stating there are different participants in each condition or takes less time.

(e) **AO3 = 3**

The question asks about recruiting participants, so answers referring to debriefing are not relevant.
There was no deception. Participants knew they would be watching a film of a violent crime and that they would be interviewed about the content by a male police officer before they volunteered. This gave them the opportunity to give informed consent.
Students may argue that the psychologist did not follow BPS guidelines eg because they were not told of their right to withdraw.

1 mark for a very brief or slightly muddled answer, linking a relevant ethical issue to whether or not awareness was shown. Further marks for accurate elaboration / discussion.

Eg He told them what he was going to do. (1 mark) They could give informed consent because he told them what he was going to do. (2 marks) The participants were told that they would be watching a violent crime so they were able to give informed consent. (3 marks)

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Q12.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

(a) **[AO3 = 2]**

One mark for an appropriate conclusion. One further mark for explanation / justification of the conclusion.

Possible answer: Participants in Group B were influenced by / conformed to / went along with / were led by / affected by the other estimates they had seen (1 mark for conclusion) because the median estimate for Group B was closer to the scores on the list (1).
Accept 'higher than' Group A.

(b) **[AO3 = 2]**

One mark for identification of the IV, ie whether participants saw 5 other supposed estimates or not

OR

whether participants wrote their estimates on a blank piece of paper or below 'other' estimates.

One mark for identification of the DV, ie the estimated weight of the cake.
Accept 'estimate'.

(c) **[AO3 = 3]**

Up to 3 marks for an explanation of how stratified sampling is achieved.
Answer may be expressed in terms of pupils from a secondary school.

One mark each for reference to the following points:

- identification of strata
- proportions to be worked out
- random selection (within the strata)

(d) (i) **[AO3 = 2]**

Up to 2 marks for an explanation of how the psychologist could have allocated the participants randomly to the two groups.

Possible answer: Each participant in the sample could be given a number which is put into a hat. The first 50 numbers drawn out of the hat would be allocated to one of the groups.
Or
50 A's and 50 B's could be put in a hat and each participant draws out a letter. The letter designates the group.

Credit alternative method

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(ii) **[AO3 = 2]**

One mark for an appropriate reason. One further mark for an explanation of that reason. Random allocation will reduce the likelihood of individual differences affecting the outcome.

Possible answer: Random allocation reduces researcher bias (1) and makes it more likely that the manipulation of the IV caused the results (1).

Accept increasing validity but do not accept reference to increasing reliability.

(e) **[AO3 = 2]**

One mark for a plausible reason.

Likely answers: to prevent the participants guessing aim of the study / naivety; to prevent order effects.
Credit reference to the illogical nature of using the same participants in both groups in this study.

One mark for relating the reason to the study.

(f) **[AO3 = 3]**

One mark for knowledge of an appropriate ethical issue.

Likely answers: deception; consent; confidentiality, etc.
One mark for elaboration of the ethical issue or why the issue is important.One mark for relating the issue explicitly to the study.

Note: INFORMED consent is only to be given **any** credit if candidate explains how it would be totally inappropriate in this study. Such a response could achieve full marks if candidate goes on to explain how use of debrief would be a way of compensating for lack of information beforehand.

(g) (i) **[AO3 = 2]**

Up to 2 marks for an outline depending on detail.
Likely answers: a structured interview (1) in which the questions asked are prepared and in a set order. (1)
An unstructured interview (1) in which the researcher has an aim but no predetermined questions. (1)

Accept other types of interview, eg face-to-face, group, one-to-one, telephone.

(ii) **[AO3 = 2]**

Up to 2 marks for a limitation of the chosen interview method that is elaborated.

Structured interview: possible answers – no deviation from predetermined questions is allowed (1) this means that an unexpected response cannot be pursued for more detail. (1)
Or, structured interviews are more formal (1) and this might make it a

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more uncomfortable experience for the interviewee. (1)

Unstructured interview: possible answers – the data are difficult to analyse (1) as all the responses are individual and therefore hard to collate / summarise. (1)
Or, unstructured interviews may produce irrelevant information (1) because it is easy for the interviewer and / or interviewee to go off the focus or point of the investigation (1).

Accept other valid responses eg comparison with other types of interview.

Q13.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

(a) **AO2 / AO3 = 2**

'There is an association between birth order and choice of career' = 2 marks.
A directional hypothesis is not credit-worthy. Reference to a relationship / correlation cannot gain credit.

Although technically, the psychologist is looking for an association, candidates can gain credit for expressing the hypothesis in terms of a difference eg 'There is a difference in career choice depending on birth order.'

2 marks for a clear hypothesis, 1 mark for a hypothesis which lacks clarity.

(b) **AO2 / AO3 = 3**

One mark for identifying a sampling method.
One mark for a brief explanation of how to obtain the sample eg 'by advertising for lawyers or artists to come forward'. One further mark for elaboration eg 'by explaining that adverts would have to be placed in appropriate journals etc to attract these particular categories of participants'

Candidates who identify a sampling method but describe it incorrectly can be awarded 1 mark.

(c) **AO2 / AO3 = 12**

This is a 12 mark question but marks are allocated to each of the required components as follows:

- An appropriately labelled table = 2 marks

1 mark for a table that displays the data in the question.
2 marks for a table which includes data relating to non first-born children. Totals are not required for the 2 marks.

Table: Table to show the career choices of first born and non-first born children

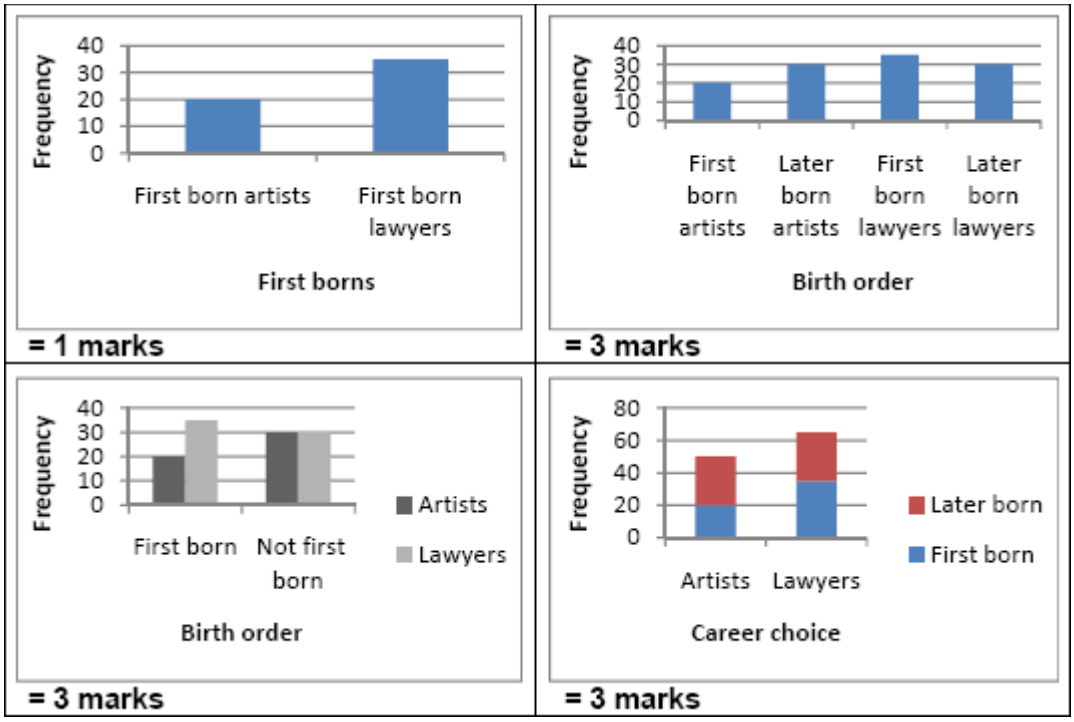
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	Artists	Lawyers	Totals
First born	20	35	55
Not first born	30	30	60
Totals	50	65	115

- a sketch of an appropriately labelled bar chart = 3 marks

For 3 marks, candidates need to display the data relating to first born and non-first born career choices on a bar chart. They should label axes correctly and draw the columns to the correct approximate height for a sketch.

For 2 marks, candidates display data as above but labels are missing or lack clarity.
For 1 mark, candidates graph the data supplied in the question relating to first born career choices only.



NB Labelled axes but no bars = 0 marks.

- identification of appropriate statistical test and justification = 1 + 2 marks

An appropriate test here is the Chi-squared.
Justification gains 2 marks. Any two correct reasons from:

- data are independent
- level of measurement is nominal
- test of association / difference is required.
- identification of appropriate significance level = 1 mark.

The most likely significance level is 5% ($p \leq 0.05$). Candidates are not asked to justify their choice. Candidates who choose a more stringent level can achieve marks but they must then follow this through when they make their statement of results.

Candidates who erroneously report 0.05% or $p = 0.5$ do not gain credit for level of

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significance but can achieve credit for the statement of results in relation to the hypothesis.

- a statement of the results of the statistical test in relation to the hypothesis = 3 marks.

For full marks, the candidate should state whether or not they can accept the hypothesis (or they can express this in terms of rejecting the null hypothesis) at a given significance level and refer to the observed and critical values.

Where candidates choose an inappropriate value from the table but interpret that value correctly, they can gain 2 marks.

The critical value for x^2 (df =1 p 0.05 (two-tailed)) is 3.84. As the observed value of x^2 2.27 is less than the critical value, we cannot reject the null hypothesis. There is not an association between birth order and career choice.

Q14.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

AO3 = 3

D
C
A.

Q15.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

Although the essential content for this mark scheme remains the same, mark schemes for the new AQA Specification (Sept 2015 onwards) take a different format as follows:

- A single set of numbered levels (formerly bands) to cover all skills
- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

(a) **AO2/3 = 6**

Candidates need to show that they understand what differentiates opinion from scientific evidence. They could mention some of the following:

- The teacher has only experienced one school in a particular catchment area so she has only observed a very limited number of 5 year-olds (issues of sampling and replicability).

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- She has found out that children do not eat anything nourishing simply by chatting with the children. She has no corroborative evidence from eg parents (issues of objectivity).
- She uses vague phrases such as ‘decent breakfast’ without being clear what this means (operationalisation).
- She has generated a theory and made predictions based on flimsy evidence.
- She has not used any scientific method to lead to her conclusions eg a carefully controlled experiment, survey or observation.
- She has drawn conclusions about the effects of breakfast without considering other variables which might affect reading skills and behaviour.

AO2/3 Mark bands
6 marks Effective Explanation demonstrates sound understanding. Application of knowledge is effective and shows coherent elaboration. Ideas are well structured and expressed clearly and fluently. Consistently effective use of psychological terminology.
5 – 4 marks Reasonable Explanation demonstrates reasonable understanding. Application of knowledge is reasonably effective and shows some elaboration. Most ideas appropriately structured and expressed clearly. Appropriate use of psychological terminology.
3 – 2 marks Basic Explanation demonstrates basic, superficial understanding. Application of knowledge is basic. Expression of ideas lacks clarity. Limited use of psychological terminology.
1 mark Rudimentary Explanation is rudimentary, demonstrating very limited understanding. Application of knowledge is weak, muddled and may be mainly irrelevant. Deficiency in expression of ideas results in confusion and ambiguity. The answer lacks structure, often merely a series of unconnected assertions.
0 marks No creditworthy material is presented.

(b) **AO2/3 = 3**

In a random sample, every member of the identified population has an equal chance of selection. In this case, the sampling frame consists of the 400 five-year-old children attending ten local schools. In order to obtain a simple random sample, the researcher has to have the names of all 400 children and can then select using one of the following methods:

- **Random number tables** – random number tables are specially devised to meet the following criteria – they contain strings of numbers where each number has the same chance of being selected as any other and each number is independent of the others.
  Such tables are readily available in statistics text books etc or can be generated by the researcher using a computer program. The researcher assigns each child a number between 1 and 400. He enters the table at any

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place (he could close his eyes and point with a finger at a starting place) and then moves either horizontally or vertically to produce a string of random numbers. He records all the numbers which correspond to the 400 children until he has recorded a total of 100 non-duplicated numbers.

- **Computer selection** – This is a similar method where the computer does most of the work. A computer can generate an endless string of random numbers ie numbers which have no relationship to one another as a sequence. Each child's name is given a number and a random number generator program is used to produce the required sample size (in this case 100 participants).

- **Manual selection** – Using this method, the researcher has to put each name (or an assigned number) on a separate slip of paper and place them all in a container. The researcher then selects 100 slips from the container. The following conditions could apply: the container should be shaken between each draw; the slips of paper should all be the same size and folded in the same way so that one does not feel different from another; the selector draws 'blind' ie cannot see the actual slips of paper.

A simple definition of a random sample is not credit-worthy since it offers no explanation.\ Similarly, answers which only use the word 'random' as an explanation cannot gain credit eg He would choose 100 participants at random from the children. One mark for a very basic method eg 'he would take names from a hat / computer / random number table'. Two further marks for elaboration.

(c) **AO2/3 = 3**

Candidates could focus on:

- Even if a sample is random, it may not be truly representative of the population eg might all come from the same school, or be all boys or all girls.

- Practical limitations eg the time and effort needed to write out 400 slips for the manual method.

- Difficulties of obtaining a truly random sample eg even if the sample is selected randomly, parents might refuse to allow their children to participate.

Any plausible and appropriate answers should be credited.
Up to 2 marks for identification of limitations. For 3 marks, one or more limitations must be explained in reasonable detail.

(d) **AO2/3 = 5**

There are two requirements to this question, **why** operationalising variables is important and **how** to operationalise the IV and the DV. If a candidate only explains **how / why**, maximum 3 marks.

The terms' 'decent breakfast' and 'reading skills' are vague. It is important from the point of view of objectivity, replicability and control of extraneous variables to make sure that these terms are closely defined.

Suggestions as to how the psychologist might do this could include the following:

The researcher needs to specify the exact composition of the breakfast (possibly by doing a pilot study or a literature search to identify the components of breakfast most likely to bring about behavioural / cognitive change). He probably also needs to

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specify the time at which it is consumed. The researcher needs to use a standard reading test which should be administered to all the participants at the beginning of the study and at the end – the dependent variable is likely to be the improvement score.

(e) **AO2/3 = 2**

Reasons are:

- a test of difference
- data (scores from a reading test) are at least ordinal, this would include ordinal / interval and / or ratio
- independent design.

One mark for each appropriate reason (maximum 2 marks).

(f) **AO2/3 = 2**

It would have been more difficult to use a matched-pairs design because of the number of relevant factors that would need to be controlled (eg gender, intelligence, parental attitudes / income / education, experience of pre-school education, number of siblings in family etc). There is a relatively small pool of children available (ie 400) and it could be difficult to match on all these factors. It would also be very time-consuming; it could be quite expensive to carry out the necessary surveys; it could be quite intrusive collecting such information from parents.

One mark for a basic explanation eg “Because it is difficult to match participants appropriately”.
One further mark for elaboration.

(g) **AO2/3 = 2**

One mark for identifying an appropriate issue and second mark for explaining how it could be addressed.

The most likely issue is confidentiality which could be addressed by ensuring that all scores on reading scales and all personal information are anonymised.
There are also ethical problems involved in denying the control group breakfast although it is more difficult for candidates to suggest a way of addressing this – perhaps to put only those children into the control group who do not eat breakfast anyway, restricting the study length to a short period of time and, if the study results support the hypothesis, to provide free breakfasts to these children for the rest of the academic year.
Parental consent is excluded because it is given in the stem so answers which offer this as an issue cannot gain credit.

(h) **AO3 = 12**

Design should be written clearly, succinctly and with sufficient detail for reasonable replicability.
Candidates will not receive credit for details included in the stimulus material. These include using a random sample of 100 children, gaining parental consent and selection of a Mann Whitney test.
To access marks in the top band candidates must state an appropriate hypothesis in which “playground behaviour” is clearly operationalised. The hypothesis could be directional or non-directional.

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Given the wording of the question, a correlational hypothesis is not credit-worthy, however, the rest of the answer should be marked on its merits.
Likely aspects of “playground behaviour” would include activity levels, aggression, cooperative play etc.
An attempt to operationalise “a healthy breakfast” should be credited. However, candidates could assume this had already been done by the psychologist.

As this is an observational study any of the following, together with appropriate justification, would be credit-worthy:
Is the observation covert or overt?
Where are observers positioned? (In playground, watching from window?)
Is a video recording of the children used? How will this be analysed (eg content analysis)?
Do the students who observe know what the children ate for breakfast?
At what times of day does the observation take place?
How many children are observed? (Candidates could justify using a smaller sub-sample of the 100 children in the original study).
How long does each observation last?
Will the observers use a behavioural check list / tally chart?
Will more than one observer observe each child? If so, what training will be given and what checks for inter-observer reliability will take place?
Reference to time sampling or event sampling.

Credit any other relevant material.

AO2/3 Mark bands
12 – 10 marks Effective design A design that demonstrates sound knowledge and understanding of observational research. The selection and application of research techniques is appropriate. The description provides sufficient detail for most aspects of the study to be implemented. Some design decisions are justified effectively.
9 – 7 marks Reasonable design The design is reasonable and demonstrates knowledge and understanding of some aspects of observational research. The selection and application of research techniques is mostly appropriate. The description provides sufficient detail for some aspects of the study to be implemented. Some design decisions are justified.
6 – 4 marks Basic design The design is basic and demonstrates limited knowledge and understanding of aspects of observational research. The selection and application of research techniques are sometimes appropriate. Some basic design decisions/features of the study are described but there may be significant omissions, lack of clarity and possibly some implausible suggestions that severely limit implementation. Justifications of the design are limited.
3 – 1 marks Rudimentary design The design is rudimentary. Design decisions are muddled and or mostly inappropriate and are not justified. Description lacks clarity. The study could not be implemented.
0 marks No creditworthy material.

Q16.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

(a) **AO3 = 3**

This is a volunteer / self–selected / voluntary sample.
Only people who read this newspaper could take part. The participants have chosen to take part, so it is a biased sample. Findings cannot be generalised to a wider population.
Volunteer sample or self-selected sample (1 mark).
Candidates can receive credit for a correct outline of a relevant disadvantage of volunteer sampling even if they have not identified the correct sampling method.
1 mark for a brief disadvantage. Eg It is biased.
2nd mark for some elaboration eg It is a biased because only some people who read the newspaper respond and they may not be typical of all readers.

(b) **AO3 = 3**

Any relevant issue should be credited.
Likely ethical issues include informed consent, right to withdraw or confidentiality.
1 mark for identification of a relevant ethical issue.
1 mark for a brief mention of a way of dealing with an ethical issue. Further mark for elaboration.
Eg Confidentiality (1 mark). Keep the participants details private (1 mark).
The psychologists should not use the participants' names in published work, or allow them to be identified in any way (2 marks).

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Q1.

In part (a) Most students scored well and were able to identify the type of observation accurately. In part (b) Very few students could identify the sampling technique as event sampling. It seemed that they interpreted the word "sampling" to refer to the way in which participants were obtained. Those who did correctly identify event sampling were able to give an accurate and detailed explanation. In part (c) It was pleasing to see how well the majority of students performed. Many were able to produce accurate and detailed answers, drawing some sensible conclusions from the data. For example, the school needs to do more to encourage the recycling of food, the initiative seems to work better with younger years, so they need to try harder with the older groups. The pitfall for some students was to go beyond the data in the table and refer to conformity and obedience. For others it was to interpret the table as if it was a correlation. Part (d) asked for one way in which this particular observation could have been improved. This is not the same as asking for a completely different study, which was not creditworthy. Better answers referred to the use of more than one observer, or to carry out the observation over several different days or locations.

Q2.

Part (a) was generally answered very well and most students were able to explain why matching the students was important. However, some failed to apply their response to this specific situation as thus were limited to 1 mark.

In part (b) many students were able to identify an appropriate variable to match the students on and then go onto explain how this might affect satisfaction scores. There were many possible accurate responses with the most common being how difficult they may find the topic (often linked to IQ) and prior knowledge of business studies. A significant minority of students identified an appropriate variable but then failed to apply it to this situation and explain how it may have affected satisfaction scores. There was also a significant number of students who failed to engage with the question and simply suggested one of a number of generic variables such as IQ, gender or age. Unless these variables were clearly linked to an appropriate variable (such as linking age to interest/experience of using computers) they would not be appropriate variables to match students on in this study and thus would not receive credit. It is important to remind students to engage with the question posed and tailor their answer to that specific question not to simply produce a response of non-specific rote-learned material.

In part (c) it was clear from student responses that the vast majority of students appeared to have some understanding of the process of random allocation. However, fewer students seem to clearly understand the reasons why random allocation is used and thus failed to answer the question posed. Of those students who did answer the question correctly some failed to apply it to this situation and thus were limited to 1 mark. It is important to note that simply referring to removal of bias without any outline or application is not sufficient to gain any credit. Reference to bias needed to be clearly focused on either removal of researcher bias or removal of participant bias and should be outlined and applied for full credit.

In part (d) most students clearly understood the strengths of stratified sampling and / or the weaknesses of opportunity sampling. However, many failed to tailor this knowledge to the actual question posed and did not explain why stratified sampling might be better than opportunity sampling in this study. Most students produced limited responses where they simply explained the strengths of stratified sampling or the weaknesses of opportunity sampling. Some students did explain why stratified sampling was an improvement in

general but failed to apply their reasoning to this specific design. Equally there were many responses which had implicit explanation of improvements which was not clear and so not sufficient for full marks. A significant minority of students either produced responses which had no relevant content or did not attempt the question suggesting that some students did not have the knowledge to enable them to answer this question. There was also some confusion with systematic sampling. This is particularly disappointing considering there was a similar question on the previous examination paper in the June 2017 series which also asked about how stratified sampling could be an improvement (although in comparison to volunteer sampling). It is important to remind students that just because a topic appears on an exam in one series does not mean that the same topic cannot appear on the exam in the following series. It is also important to use previous examination questions with students to ensure they are familiar with the style and type of questions which they may be presented with in their actual examination.

In part (e) the overwhelming majority of students answered correctly and there was a wide range of appropriate questions which would generate qualitative data seen in student responses. Unfortunately, a very small minority of students wrote Likert scale questions which would have generated quantitative data.

In part (f) there were some excellent responses with a range of different appropriate problems with analysing qualitative data seen. Most students who identified an appropriate problem went on to clearly explain it and thus gain full credit. However, some students failed to address the actual question posed and explained problems either with collecting qualitative data (such as ‘it takes time for participants to complete’) or with the validity of the qualitative data (such as ‘participants might lie in their responses’). Responses must be based on analysis to gain credit and the most common error seen was where students were focusing on subjectivity of the participants when answering the questions to produce the qualitative data rather than subjectivity of the researcher when analysing the qualitative data.

In part (g) most students answered correctly and a wide range of outlined ethical issues was seen in responses. Unfortunately, a few students simply named an ethical issue without outlining it.

In part (h) most students were able to draw an accurate scattergram with two appropriately labelled axes on suitable scales. A small minority of these students also produced an accurate and appropriate title which referred to the relationship between the two co-variables. However, many students failed to either provide a title for their graph or produced an inaccurate or vague title which was not sufficient for credit. There were also errors in plotting points in some responses and some students produced very small graphs with inappropriate scaling. Some students failed to read the question correctly and did not draw a scattergram. A variety of incorrect types of graph were seen but the most common was a line graph where students had joined up the plotted points ethical issue without outlining it.

The vast majority of students scored one mark in part (i) as few responses had both components required for two marks. Most responses only included a description of the relationship between online hours and satisfaction but did not identify the relationship as a negative correlation. The description of the relationship was expressed in several different accurate ways but the most common was more online hours the less satisfied they were. A small number of students produced confused conclusions based on causal relationships which were incorrect.

Part (j) was answered very well with the vast majority of students correctly calculating both the mode and median satisfaction scores and thus being awarded full marks. A very small minority made a mistake in their calculations leading them to produce an incorrect median and/or mode. Unfortunately, a very small number of students failed to fully answer the

actual question posed and calculated a mean value instead of either the median or mode.

In part (k) there was evidently much confusion amongst students as to why the median would be more representative than the mode in this data set. Most responses simply consisted of statements of how to calculate the median and the mode rather than explaining a reason why the median might be more suitable to represent the average score in this study. Some students were able to explain why the mode was less representative of the average satisfaction scores and thus produced a limited explanation but very few were able to explain why the median was more representative. Only a very small minority of students were able to explain that the median was more representative as it is numerically closer to more of the other scores in the data set compared to the mode and thus few students gained 2 marks. Some students simply repeated the question stating that the median is more representative than the mode without any explanation.

There were a lot of correct answers to part (l) and it was apparent that many students had the knowledge to be able to identify the negative skew in this data. However, when compared to the other MCQ on this paper, more students did not attempt this question and the number of correct responses was lower. This suggests that their knowledge of negative skew was poorer than their knowledge of introspection and overt observations.

Q3.

Marks were awarded independently for part (a) so many answers gained a mark for identification of strata. Whilst the stem was meant to cue the students in to ‘the 4 schools’ as strata, some students invented possible strata of their own, for example, male / female or A Level subjects studied. Thereafter, marks were less easily gained because further credit was dependent on whether or not students could explain the need for proportionality in the sample. References to proportionality were not always explicit; other terms could receive credit, for example, many students used the word ‘ratio’ which was accepted. It was also acceptable and quite commonly the case that the idea was explained through the use of a concrete example, or via a mathematical formula. Having achieved marks for strata and proportionality, it was then possible to be credited for the random selection from each stratum. Relatively few answers did attain full marks.

Part (b) tended to yield high marks, with confidentiality, withdrawal of data, enquiries about possible harm and explanation of the aim as the basis of most answers. Verbatim responses tended to gain the higher marks, usually because they included fairly elaborate explanation as would typically occur when dealing with real participants. Some answers strayed into reasons why certain points would be important, which was not really answering the question. Despite taking a fairly eclectic approach to what might be construed as ‘ethical’, examiners occasionally noted points of general small talk that were not deemed creditworthy, such as ‘Have you travelled far?’

Performance on part (c) depended on whether or not students were able to organise their response efficiently and address the three skills in a relatively short time. Less well scoring answers got bogged down in theory of maternal deprivation and barely mentioned parasocial relationships, or wasted time explaining the three different levels or types of parasocial relationship and forgot to mention attachment theory. There was some confusion with the absorption-addiction model. Effective discussion tended to centre around use of evidence or the possible benefits of parasocial relationships, but was not very common. Students sometimes wasted valuable time on anecdotal account of the effects of the death of famous people.

Q4.

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as strata, some students invented possible strata of their own, for example male / female or A Level subjects studied. Thereafter, marks were less easily gained because further credit was dependent on whether or not students could explain the need for proportionality in the sample. References to proportionality were not always explicit; other terms could receive credit, for example, many students used the word ‘ratio’ which was accepted. It was also acceptable and quite commonly the case that the idea was explained through the use of a concrete example, or via a mathematical formula. Having achieved marks for strata and proportionality, it was then possible to be credited for the random selection from each stratum. Relatively few answers did attain full marks.

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In (c), marks were largely dependent on the ability to organise material and address the three skills in limited time. Despite the diverse requirements, answers tended to be high scoring with many accurate and through accounts of Bem’s work, including the BSRI and more general theory. Whilst most students offered some valid application, it was surprisingly rare to see effective links to self-esteem. Discussions varied both in terms of content and quality, with many of the better answers commenting on relevance in relation to social changes since Bem’s original work.

Q5.

In part (a) marks were awarded independently so many answers gained a mark for identification of strata. Whilst the stem was meant to cue the students in to ‘the 4 schools’ as strata, some students invented possible strata of their own, for example male / female or A Level subjects studied. Thereafter, marks were less easily gained because further credit was dependent on whether or not students could explain the need for proportionality in the sample. References to proportionality were not always explicit; other terms could receive credit, for example, many students used the word ‘ratio’ which was accepted. It was also acceptable and quite commonly the case that the idea was explained through the use of a concrete example, or via a mathematical formula. Having achieved marks for strata and proportionality, it was then possible to be credited for the random selection from each stratum. Relatively few answers did attain full marks.

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Part (c) was often well answered, but, as in the case of the parallel questions, marks were largely dependent on the ability to organise material and address the three skills in limited time. What might have been very worthy accounts of Vygotsky’s theory were sometimes marred by students’ lack of ability to use specialist terminology effectively. Discussion tended to focus on implications for education and comparisons with Piaget. Despite there being ample scope for application, this was often very limited, with the barest mention that ‘students who say they are helped in the classroom would learn better’.

Q6.

(a) There was evidently much confusion amongst students as to when a directional or non-directional hypothesis should be used and many failed to get any marks on this question. Those who did correctly state the hypothesis should be non-directional portrayed this is many ways, ranging from ‘the hypothesis should be non-directional’ or ‘the hypothesis should not be directional’, to simply ‘no’ in response to the question stated. However, only around half of these correct responses went on to accurately explain the reason for this in relation to the fact that there was no previous research. Many students stated that ‘the hypothesis should be directional as it was clearly seen from the data that participants…’. It appears that many have not had sufficient practical experience of selecting an appropriate hypothesis and thus did not understand how to apply their knowledge in order to accurately answer this question.

(b) The overwhelming majority of students clearly knew how to calculate a percentage and most were awarded two marks. Virtually all also provided their workings to support their answer. Those students who gave an incorrect answer but included correct workings were awarded one mark.

(c) Most students clearly understood that stratified sampling was more representative or reduces research bias but many did not refer to subsets of students in the correct proportions. A minority confused stratified sampling with systematic sampling. There were also a number of students that didn’t attempt the question, suggesting that they did not have the knowledge.

(d) The vast majority of students scored one mark for this question with their understanding that primary data is first hand data. Very few referred to it as being ‘original’ data. Even fewer students referred to primary data as data collected specifically for the research being carried out and thus few were awarded two marks. There was significant confusion in responses illustrating a lack of understanding surrounding primary data as many students were incorrectly focusing on who was collecting the data.

(e) Some good responses were provided by the minority of students who understood why the mean was the most appropriate value and could refer to it as being more representative. Of these correct responses, only around half went on to clearly explain why it was the most appropriate and thus few students achieved full marks. It was evident that the vast majority did not understand why the mean would be the most appropriate measure and stated incorrect reasons, such as ‘the mean is the most appropriate as it shows the overall average’ and so scored no marks.

(f) This question was answered very well with the vast majority of students producing correct mean values for both tasks and thus being awarded full marks. A small minority were awarded partial credit for stating an incorrect answer but with correct workings.

(g) It was very clear from responses to this question that most students did not understand the purpose of counterbalancing and so scored zero marks. Most responses incorrectly stated that the purpose was to ‘reduce, eliminate or prevent’ order effects. Students seemed to be unaware that the purpose of counterbalancing is to control or equally distribute the impact of order effects. Other responses were tailored towards an explanation of how you would do counterbalancing rather than discussing the purpose. There were also a significant number of blank spaces suggesting that some students did not have the knowledge to enable them to attempt this question.

(h) There were some excellent answers to this question with appropriate extraneous

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variables (EVs) identified and elaborated. However, many students failed to achieve the third mark as they did not explicitly state what effect the EV would have on the time taken to complete the spot the difference task (DV). Many correct responses referred to the type or volume of music being played, or the difficulty of the spot the difference tasks. However, a minority of students failed to achieve any marks as their responses referred to participant variables, such as poor eyesight or IQ, which would have been accounted for through the use of a repeated measures design. Additionally, some answers were vague and referred to 'environmental conditions' as an EV without explicitly referring to the change in these conditions between the tasks and thus limited the marks awarded.

(i) Most students produced some limited explanation of how the follow up study improved upon the first study and thus achieved level 1. However, few went on to give a detailed explanation of this improvement, often only focussing on either why the follow up study was positive or why the original study was negative without comparison. Those students who achieved level 2 tended to focus on the follow-up study being more objective, a more scientific measurement or allowing cause and effect to be established, and then compared this with the relevant opposing weakness of the original study (more subjective, less scientific and only opinion so does not establish cause and effect). A minority of students mistakenly assumed that the first study generated qualitative data as it was self-report and so focused on the limitation of that versus the quantitative element of the follow-up study, and so scored no marks.

Q7.

(a) For full credit students needed to apply their knowledge of a problem associated with volunteers in this particular study. Many only referred to bias or representativeness and did not relate their responses to type of offender/ possible effect on therapy or on anger scores.

(b) There were many different suggestions given for random allocation and all suggestions that were practical and would result in the required groups were credited. However, many responses never went beyond the idea of putting names in a hat or into a random number generator, meaning that all the researcher would have is names in a hat or in a generator. Students should be able to describe accurately what they would do to reach the final stage of having the required number of people in the required groups. It was very clear that many students had no idea of what they would have to instruct the computer or random number generator to do in order to reach this stage.

(c) Full marks were rarely achieved as most responses failed to show understanding of what was being measured in this study (the DV) which was a **reduction** in anger scores not anger scores or anger. Some students thought the study was looking for a difference between the start and end of therapy rather than between two different therapies.

(d) Many students failed to write enough about the data. Instead, they seemed to be providing answers to a question that required justification of one chosen suggestion, often just referring to the greater reduction in Group 2/Therapy B indicating that it was more effective. There were many points that could have been extrapolated from the data in the figure.

(e) Many students overlooked the most significant improvement to be derived from using a matched pairs design, ie the matching on pre-therapy anger scores. These students resorted to explaining matched pairs in a generic way without reference to the criteria which could be used for matching. Instead they often suggested IQ, age

and sex as the crucial points, rather than pre-therapy anger scores. While credit was available for demonstrating an understanding of matched pairs design these responses did have to be contextualised and unfortunately many answers were generic.

(f) It was surprising that a number of students missed the second part of this question. An appropriate ethical issue was outlined (often fully) but then there was a failure to explain how this issue could have been dealt with. The importance of keeping the whole question in mind is highlighted in this case. Some responses presented a muddle of possible issues and markers had to try to match an appropriate issue with its appropriate solution. More worrying were the responses where one issue was described and a different issue was dealt with.

(g) Answers were often disappointing as students seemed unaware that median values are a form of average and stated that a problem was the median is not an average. Others made vague statements about how the median doesn't use all the values, but it would be difficult to find a median without the other values.

(h) This was generally answered well by the majority of students. However, there were quite a number of responses where knowledge was evident but marks were not obtained because the answer was not contextualised.

(i) It was again difficult to give full credit to responses in some cases as they were often vague or undeveloped so the information about the strength of using questionnaires as a technique for data collection often lacked clarity.

Q10.

This question was generally answered well with most students able to demonstrate some understanding of the problems in making generalisations. Many students referred to generalising from small / unrepresentative samples and the problem of the lack of ecological validity when generalising from laboratory experiments. Where students were not awarded full marks it was usually because either answers were not fully developed or only one problem was outlined.

Q11.

Most students could identify volunteer / self-selected sampling. A few responses incorrectly referred to opportunity or random sampling.

Many responses scored the full two marks. Perhaps this was partly due to the fact that the mark was given whether or not the DV was operationalised. Some students had no idea what IV or DV referred to, and a significant minority got them the wrong way round.

Good answers often referred to the diminished likelihood of demand characteristics with independent groups design, or the lack of order effects due to participants taking part in only one condition. A few answers incorrectly muddled the two, ie there would be fewer demand characteristics because participants would not suffer practice effects. Although it was correct to say there would be no order effects, it was not correct to say there would be no demand characteristics. There could potentially be fewer.

Generally students noticed that the stem gave the opportunity to refer to the potential for informed consent, though many had not addressed the right to withdraw. However, some students ignored the requirement to focus their response on the stage of recruiting participants, so answers referring to debriefing were not relevant. The word debriefing was inappropriately used when some students were referring to briefing.

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Q12.

(a) The majority of students scored full marks for this question although weaker responses merely re-stated the pattern of the results given in Table 1 and omitted any reference to an appropriate conclusion.

(b) Answers to this question were relatively poor, with only a third of the cohort able to state the independent and dependent variables with clarity.

(c) This was very poorly answered with more than half of the responses achieving no credit. Students muddled stratified sampling with both random sampling and systematic sampling. Very few could explain in a logical way exactly what a researcher would do to gain a stratified sample of the available target population.

(d) (i) Although some students seemed aware that once selected the participants could be randomly allocated to conditions using a hat or computer, they were very unclear about exactly what should be done. Descriptions suggested 'putting all the names in a hat/computer' but could not describe what would happen next. It seemed quite obvious to examiners that many students have never had a practical opportunity to allocate either people to conditions or words to lists, in a random way.

(ii) Similarly, few students gained full credit for this question as they struggled to explain why random allocation is important, although many were able to produce answers with vague reference to the issue of bias.

(e) Students have clearly learned generic responses to questions about the advantages and disadvantages of experimental designs. However, here they needed to make it clear that repeated measures would not be a suitable experimental design in this case. Some did not notice that having guessed the weight of a cake once, participants would lose their naivety in the study and it would be an illogical request to ask them to repeat the task either with, or without, other estimates on the answer sheet. In many cases they just trotted out answers which suggested the participants would be extremely fatigued having guessed once or that they would get better at guessing so their answers would improve.

(f) There seemed to be an expectation that as the question asked about ethical issues then the response should include how to address the issue. The question did not require students to do this but many offered such answers. Some stated that informed consent was an issue but then explained the issue of consent/permission to participate in the study, without realising these are different issues. Others identified informed consent but failed to recognise that attempting to gain this would mean it would be impossible to implement the study.

(g) (i) Although the Specification only names structured and unstructured interviews as types of interview, there were some very obscure answers to this question. Unfortunately, even when students chose to write about the named interviews they often drifted into answers about type of question. Some thought that structured interviews only contain closed questions and unstructured only open questions and elaborated their description in this way. They then compounded this error in part (g)(ii) by discussing a limitation of closed or open questions. Others suggested that one type of interview would be a questionnaire.

(ii) As stated above, many students discussed limitations of types of question rather than types of interview and only about a third of the cohort gained full credit for this question.

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Q13.

(a) Hypothesis writing is still a problematic area for many candidates – despite the requirement to do this at AS level. Many candidates achieved zero marks on part (a), having mistakenly written a directional or a null hypothesis. Many responses were lacking in clarity or failed to include an operationalised DV so only achieved 1 mark. The best answers were concisely and clearly worded responses such as "There will be an association between birth order and career choice", which achieved the full 2 marks.

(b) Virtually all candidates identified an appropriate sampling technique. However, a large number did not score full marks because their account of how to obtain the sample was confused or insufficiently linked to the study in question on artists and lawyers. Candidates who chose a random sample needed to explain how the target population would be identified.

(c) Some centres had clearly prepared their candidates very well and many showed an impressive understanding of inferential statistics scoring 11 or 12 marks. However, other candidates struggled with the question and collected very few marks. Some of the most common errors were as follows.

A number of candidates did not know how to express the statistical conclusion of a research study, by referring to observed and critical values and probability. There were errors in correctly identifying the observed and critical values and their relationship to the hypothesis. A large number of candidates did not label the axes of the graph or only showed data relating to first born career choices.

Some candidates chose the wrong statistical test; some did choose the correct statistical test but did not then state the reasons why the test was appropriate.

Yet again, advice to teachers is to do some practical work. It was clear that some candidates were very familiar with the rationale for selecting a test and deciding if an observed value is significant or not. These candidates had a strong advantage on part (c).

Q14.

This was answered correctly by most candidates.

Q15.

(a) A challenging question because candidates needed to apply their knowledge. They often knew about what makes something scientific (objectivity, replicability, etc) but seemed unable to engage with the stem. There were lots of answers involving paradigm shift, which were not relevant to this question.

(b) Most candidates had some idea about how a random sample could be obtained, but often failed to explain the methods fully. They could suggest all the names should be put in a hat, but did not make it clear that the names were then selected "without looking" or "without bias". There was some confusion with systematic sampling.

(c) Many answers displayed some confusion here, eg saying that a limitation was that it was not representative of the whole population, when the point is that is might not be representative of the target population of 400. Some answers referred to problems of allocation to conditions, rather than random sampling. A good point was made by those who said that if some parents did not give consent, the psychologist would have to select again, and that would not be random.

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(d) This question was not answered well. Most candidates seemed very unclear about why it is important to operationalise variables. How to actually operationalise the two variables was beyond many candidates. Some effective answers referred to food content eg fat, sugar etc.

(e) Most candidates answered this correctly.

(f) There was some serious confusion about what exactly matched pairs design is. Few could go beyond “it’s time consuming” or “difficult to match on all variables”. Some referred back to the random sample and said it would not be possible; others felt that at five-years-old children are either too similar to match or too different.

(g) Most could identify an ethical issue such as confidentiality, the right to withdraw and protection from harm (those who did not get any breakfast or who were embarrassed at their poor reading). Some seemed to forget that they also had to explain how the issue would be dealt with, or they simply repeated that the right to with draw could be dealt with by giving the right to withdraw.

(h) This question was not answered well. Many candidates failed to read the question carefully before they attempted it. They were given the information that they were using the same group of children (ie the 5-year olds in the previous study). Despite the fact that the ethical issues and sampling had already been addressed in the plan for the original study many wrote at great length about sampling and ethics. The majority of candidates were unable to write a fully operationalised hypothesis, and often simply restated the aim. Many seemed to think the IV was breakfast versus no breakfast, rather than healthy versus unhealthy breakfast. Some of their ideas were totally impractical, especially given that the children were only 5 years old. In many answers lack of detail would have made any kind of replication very difficult. However, some candidates did understand the need for some sort of training for the observers, the need for clearly identified behaviour categories to record, and the importance of being able to distinguish the two groups in the playground. Designing a study is clearly a difficult task for candidates, and one that they need to practice.

Q16.

(a) Most candidates understood that this was a volunteer / self-selected sample and many of these went on to explain a relevant weakness. The most commonly offered was the problem of generalising from a self-selected sample. Some candidates lost a mark by confusing a volunteer sample with an opportunity or random sample. However, they could still gain marks by explaining an appropriate weakness. A surprising number of candidates did not understand what was meant by a sample and identified the method (questionnaire) instead. Unfortunately, this meant that they usually got no marks at all.

(b) This was generally answered well with the most successful answers focusing on issues of confidentiality and protection of harm. There were some very thoughtful responses and it was pleasing to see that some candidates could respond by giving serious consideration to ethical issues. Informed consent was a perfectly acceptable issue but candidates who used this often offered a weak way of dealing with it eg ‘informed consent was an issue so the researchers would have had to ask them to give their consent’. A surprising number of candidates did not seem to understand what was meant by an ethical issue and wrote about problems of sampling instead.

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