

1

A researcher wanted to see whether cognitive behaviour therapy was an effective treatment for depression. Twenty depressed patients who had all recently completed a course of cognitive behaviour therapy were involved in the investigation. From their employment records, the researcher kept a record of the number of absences from work each patient had in the year following their treatment. This was compared with the number of absences from work each patient had in the year prior to their treatment.

Those patients who had fewer absences from work in the year following their treatment than in the year prior to their treatment were classified as 'improved' (+). Those patients who had more absences were classified as 'deteriorated' (-). Those patients who had the same number of absences were classified as 'neither' (0).

The results of the investigation are included in **Table 1** below.

Table 1

Patient	Improved	Deteriorated	Neither
1	+		
2			0
3		-	
4	+		
5	+		
6	+		
7		-	
8		-	
9			0
10	+		
11		-	
12	+		
13	+		
14	+		
15	+		
16		-	
17	+		
18	+		
19	+		
20			0

The researcher decided to use the sign test to analyse the data.

- (a) Explain **two** factors that the researcher had to take into account when deciding to use the sign test. Refer to the investigation above in your answer.

(4)

- (b) Calculate the sign test value of s for the data in **Table 1**. Explain how you reached your answer.

(2)

Table 2: Critical values for the sign test

n	0.005 (one tailed) 0.01 (two tailed)	0.01 (one tailed) 0.02 (two tailed)	0.025 (one tailed) 0.05 (two tailed)	0.05 (one tailed) 0.10 (two tailed)
16	2	2	3	4
17	2	3	4	4
18	3	3	4	5

For significance, the value of the less frequent sign is equal to, or less than, the value of the table.

- (c) With reference to the critical values in **Table 2**, explain whether or not the value of s that you calculated in response to **question (b)** is significant at the 0.05 level for a two tailed test.

(2)

- (d) The investigation above is based on secondary data.

In what ways would the use of primary data have improved this investigation?

(3)

- (e) Outline the implications of psychological research for the economy. Refer to the investigation above in your answer.

(5)

(Total 16 marks)

2

Read the item and then answer the questions that follow.

A child psychologist carried out an overt observation of caregiver-infant interaction. She observed a baby boy interacting separately with each of his parents. Using a time sampling technique, she observed the baby with each parent for 10 minutes. Her findings are shown in the table below

Frequency of each behaviour displayed by the infant when interacting with his mother and when interacting with his father

	Gazing at parent	Looking away from parent	Eyes closed	Total
Mother	12	2	6	20
Father	6	10	4	20
Total	18	12	10	40

(a) Using the data in the table, explain the procedure used for the time sampling technique in this study.

(3)

(b) In what percentage of the total observations was the baby gazing at his mother? Show your calculations.

(2)

(c) Which **one** of the following types of data best describes the data collected in this study? Shade **one** box only.

A Primary data

B Qualitative data

C Secondary data

D Continuous data

(1)

(Total 6 marks)

3

Read the text below and answer the questions that follow.

A psychologist is using the observational method to look at verbal aggression in a group of children with behavioural difficulties. Pairs of observers watch a single child in the class for a period of one hour and note the number of verbally aggressive acts within ten-minute time intervals. After seeing the first set of ratings, the psychologist becomes concerned about the quality of inter-rater reliability. The tally chart for the two observers is shown in the table below.

Table: Observation of one child – number of verbally aggressive acts in ten-minute time intervals

Time slots	0–10	11–20	21–30	31–40	41–50	51–60
Observer A	2	5	0	6	4	3
Observer B	4	3	2	1	6	5

- (a) Use the data in the Table above to sketch a scattergram. Label the axes and give the scattergram a title. (4)
 - (b) Using the data in the Table above, explain why the psychologist is concerned about inter-rater reliability. (4)
 - (c) Identify an appropriate statistical test to check the inter-rater reliability of these two observers. Explain why this is an appropriate test. (3)
 - (d) If the psychologist does find low reliability, what could she do to improve inter-rater reliability before proceeding with the observational research? (4)
- (Total 15 marks)**

4

A group of researchers conducted a survey about helping behaviour. They asked an opportunity sample of 200 university students to complete a questionnaire. The questionnaire contained open and closed questions. The following are examples of questions used in the questionnaire:

- A** Do you think that you are generally a helpful person? Yes No
 - B** What do you think most people would do if they were driving in the rain and saw a woman standing alone next to her broken-down car?
 - C** How would you react if someone walking in front of you slipped and fell over?
- (a) Identify an open question from **A**, **B** or **C** above. Give **one** advantage of using open questions.

Example of open question (write **A**, **B** or **C**) _____

(1)

Advantage _____

(1)

The researchers then categorised the responses given to question **C** above. The results are shown in **Table 1**.

Table 1: The number of participants who gave the following responses to question C

Help the person	Ignore the person	Laugh at the person	Other reactions
137	23	31	9

- (b) What conclusion might the researchers draw from the responses given in **Table 1** above? Justify your answer.

(2)

On the basis of the responses to question **C**, the researchers decided to conduct a further investigation. The aim was to see whether an individual's helping behaviour might be affected by the presence of other people.

The participants were an opportunity sample of 40 first-year students. The students were told that they would be interviewed about university life. Each student was met by an interviewer and asked to wait. The interviewer then went into the next room. After two minutes there was a loud noise and a cry of pain from the next room.

Twenty participants took part in **Condition 1** and the other 20 participants took part in **Condition 2**.

Condition 1 Each participant waited alone.

Condition 2 Each participant waited with another person who had previously been told by the researchers not to react to the sounds from the next room.

The researchers counted the number of participants in each condition who went to help the interviewer in the next room.

(c) Write a suitable experimental hypothesis for the further investigation.

(2)

(d) Suggest **one** extraneous variable that might be present in the further investigation. Explain why this variable should be controlled and how it could be controlled.

(3)

(e) Identify the experimental design used in the further investigation. Explain why this is a suitable experimental design for this study.

(3)

- (f) Explain how random sampling might have been used to select the participants in the further investigation.

(2)

The results of the further investigation are given below.

Table 2: Number of participants who went to help the interviewer in Condition 1 and Condition 2

Condition 1 (Participant waiting alone)	Condition 2 (Participant waiting with another person)
20	9

- (g) Suggest a suitable graphical display that could be used to represent the data in **Table 2**. Justify your choice.

(2)

- (h) After the further investigation, the researchers debriefed the participants. Discuss **two** points that the researchers should have included when they debriefed the participants.

(4)

(Total 20 marks)

5

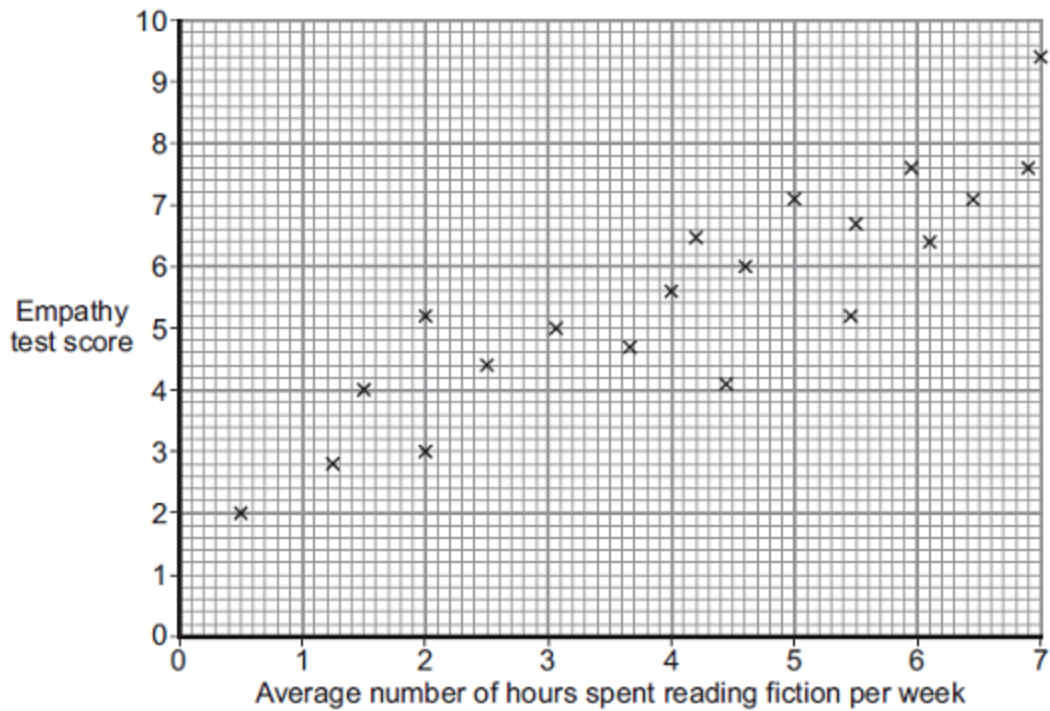
A student teacher was interested in the relationship between empathy (consideration and feelings for others) and the time spent reading fiction. She decided to investigate whether or not such a relationship was present in children.

The student teacher designed her own questionnaire to measure empathy in 8-year-old children. The higher the score achieved, the greater the empathy. Twenty children, all from one school, took part. Each child completed the questionnaire individually.

The student teacher designed another questionnaire to measure 'time spent reading fiction'. Each child was given this questionnaire to take home and complete with his or her parents over a four-week period. 'Time spent reading fiction' included the time spent by parents reading to the child as well as the time the child spent reading independently. Using the responses to this questionnaire, the student teacher calculated how much time per week, on average, each child spent reading fiction.

The data obtained are shown in the graph below.

Scattergram of children's scores on a test of empathy and the average number of hours spent reading fiction per week.



- (a) Outline the relationship between empathy and the average number of hours spent reading fiction per week shown in the graph above. (1)
- (b) Name an appropriate test to determine whether or not there is a significant relationship between the two variables in the graph above. Justify your answer with reference to levels of measurement. (2)
- The student teacher decided to use a two-tailed test.
- (c) Outline **one** way in which the student teacher could have assessed the validity of the empathy questionnaire. (2)
- (d) Apart from the issue of validity, identify and briefly explain **one** methodological limitation of the study. (2)
- (e) Explain why it was appropriate for the student teacher to use a correlation study rather than an experiment. (3)

- (f) The student teacher noticed that some students on her course commented that they were better able to recall information if they could read the information rather than listen to it in lectures.

Design an experiment to test the following hypothesis:

'People who are given written information will recall more than people who hear information in spoken form.'

In your answer, you should refer to the following and justify your design decisions:

- the variables to be considered
- the experimental design to be used
- the sample
- relevant materials
- an outline of the proposed procedure.

(8)

(Total 18 marks)

6

A researcher used content analysis to investigate how the behaviour of young children changed when they started day care.

He identified a group of nine-month-old children who were about to start day care.

He asked the mother of each child to keep a diary recording her child's behaviour every day for two weeks before and for two weeks after the child started day care.

(a) Explain how the researcher could have used content analysis to analyse what the mothers had written in their diaries.

Extra space _____

(4)

(b) Explain **one or more** possible limitations of this investigation.

Extra space _____

(4)
(Total 8 marks)

7

Research has suggested that institutionalisation can have negative effects on children. In the 1990s, many children were found living in poor quality orphanages in Romania. Luca had lived in one of these orphanages from birth. When he was four years old, he was adopted and he left the orphanage to live in Canada. His development was then studied for a number of years.

(a) Outline possible negative effects of institutionalisation on Luca.

Extra space _____

(4)

- (b) The scenario above is an example of a case study. Outline **one** strength and **one** limitation of this research method.

Strength _____

Limitation _____

(4)

(Total 8 marks)

8

Psychologists sometimes use case studies to study children. One example was of a boy who was discovered at the age of six. He had been kept in a darkened room and had had almost no social contact with people.

- (a) How could a psychologist maintain confidentiality when reporting a case study?

(2)

(b) Psychologists use a range of techniques to gather information in case studies.

Outline **one** technique which the psychologist could use in this case study.

(2)

(c) Apart from ethical issues, explain **one or more** limitations of using case studies.

Extra space _____

(4)

(Total 8 marks)

9

Read the item and then answer the questions that follow.

A psychologist wanted to see if verbal fluency is affected by whether people think they are presenting information to a small group of people or to a large group of people.

The psychologist needed a stratified sample of 20 people. She obtained the sample from a company employing 60 men and 40 women.

The participants were told that they would be placed in a booth where they would read out an article about the life of a famous author to an audience. Participants were also told that the audience would not be present, but would only be able to hear them and would not be able to interact with them.

There were two conditions in the study, **Condition A** and **Condition B**.

Condition A: 10 participants were told the audience consisted of 5 listeners.

Condition B: the other 10 participants were told the audience consisted of 100 listeners.

Each participant completed the study individually. The psychologist recorded each presentation and then counted the number of verbal errors made by each participant.

(a) Identify the dependent variable in this study.

(2)

(b) Write a suitable hypothesis for this study.

(3)

(c) Identify **one** extraneous variable that the psychologist should have controlled in the study **and** explain why it should have been controlled.

(3)

(d) Explain **one** advantage of using a stratified sample of participants in this study.

(2)

(e) Explain how the psychologist would have obtained the male participants for her stratified sample. Show your calculations.

(3)

(f) The psychologist wanted to randomly allocate the 20 people in her stratified sample to the two conditions. She needed an equal number of males in each condition and an equal number of females in each condition. Explain how she would have done this.

(4)

(Total 17 marks)

10

A researcher wanted to compare the effectiveness of two therapies for young offenders who had been identified as having anger management issues. Offenders, who were all sentenced to two years in a Young Offenders' Institution, were asked to volunteer to take part in an anger management programme. Fifty volunteers were randomly allocated to Group 1 (Therapy A) or Group 2 (Therapy B).

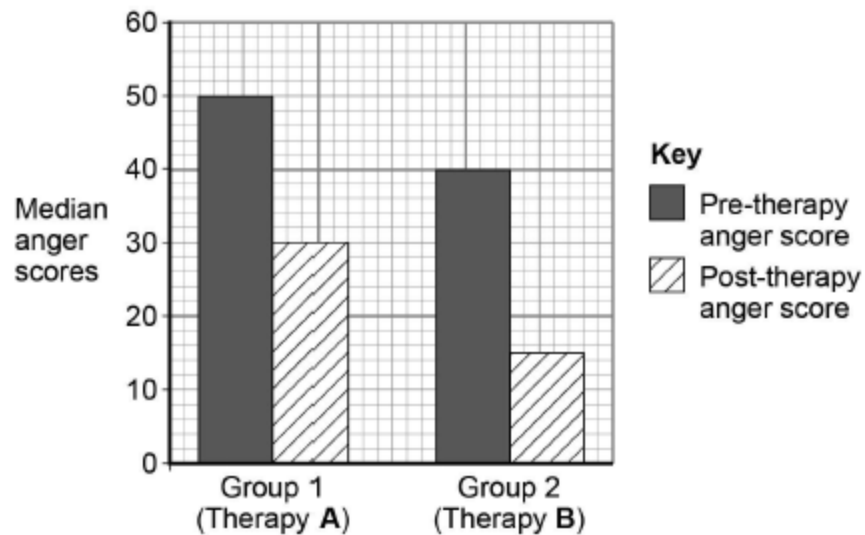
Each participant's anger was assessed before and after therapy. For the **pre-therapy anger score** they completed an Anger Scale questionnaire and their responses were scored. A high score indicated extreme anger and a low score indicated mild anger.

For the next eight weeks, participants attended weekly sessions for either Therapy A or Therapy B.

For the **post-therapy anger score**, at the end of the treatment period, participants completed the same Anger Scale questionnaire.

The data obtained are shown in the figure below.

Median anger scores before and after therapy for Group 1 (Therapy A) and Group 2 (Therapy B)



- (a) The researcher used volunteers for this study. Outline **one** disadvantage of using volunteers to take part in this study.

(2)

(b) Explain how the researcher could allocate the volunteers randomly to the conditions of the experiment.

(3)

(c) Write a suitable hypothesis for this study.

(3)

(d) What do the data in the figure above seem to suggest?

(3)

(e) Explain how the study might be improved by using a matched pairs design.

(4)

(f) Outline **one** ethical issue that might have occurred in this study and explain how the researcher could have dealt with this issue.

(4)

(g) Give **one** disadvantage of using median values as seen in the figure above to represent the anger scores of participants.

(1)

(h) Explain how demand characteristics might have occurred in this study.

(2)

- (i) The researcher used a questionnaire to assess the anger scores of the offenders. Briefly discuss **one** strength of using questionnaires in research.

(Total 24 marks)

Mark schemes

1

(a) [AO2 = 4]

2 marks for identifying two factors that are relevant for use of the sign test:
nominal/categorical data; test of difference; related design/repeated measures.

Plus

Up to 2 marks for application of these to the investigation described:

- Nominal data as patients are assigned to one of three categories – ‘improved’, ‘deteriorated’ or ‘neither’.
- Testing for difference in the number of absences in the year following and prior to treatment.
- Repeated measures as the same patients' work records are compared before and after treatment.

(b) [AO2 = 2]

1 mark for identifying the correct value of s as 5

Plus

1 mark for explanation/calculation of how this was arrived at:

- The most commonly occurring sign is + (12) and the least frequently occurring sign is – (5). The 0s are disregarded.
- The total for the least frequently occurring sign is the value of $s = 5$

(c) [AO2 = 2]

1 mark for stating that the value of s (5) is not significant at the 0.05 level.

Plus

1 mark for explanation:

- The critical value is 4. As the calculated value is higher than/exceeds the critical value, the result is significant not at the 0.05 level.

Accept alternative wording

(d) [AO3 = 3]

Marks may be awarded for a single point that is expanded/elaborated or more than one point briefly stated.

1 mark only if there is no reference to the investigation described.

Possible points:

- Primary data are obtained 'first-hand' from the participants themselves so are likely to lead to greater insight: e.g. into the patients' experience of treatment, whether they found it beneficial, negative, etc.
- Secondary data, such as time off work, may not be a valid measure of improvement in symptoms of depression. Primary data are more authentic and provide more than a surface understanding: e.g. participants may have taken time off work for reasons not related to their depression.
- The content of the data is more likely to match the researcher's needs and objectives because questions, assessment tools, etc. can be specifically tailored: e.g. an interview may produce more valid data than a list of absences.

(e) [AO1 = 3 AO2 = 2]

Level	Marks	Description
3	4 – 5	Knowledge of the implications of psychological research for the economy is clear. Application to the investigation described is effective. The answer is coherent with effective use of terminology.
2	2 – 3	Some knowledge of the implications of psychological research for the economy is present but there is a lack of detail/clarity. Application to the investigation described is limited or absent. Terminology is used appropriately on occasion.
1	1	An implication of psychological research for the economy is briefly stated.
	0	No relevant content.

AO1 – possible content:

- Psychological research may lead to improvements in psychological health/treatment programmes which may mean that people manage their health better and take less time off work.
- Absence from work costs the economy an estimated 15 billion a year annually and much of this absence is due to 'mild' mental illness: e.g. stress, anxiety.
- Psychological research may lead to better ways of managing people whilst they are at work to improve productivity: e.g. research into motivation and workplace stress.
- 'Cutting-edge' scientific research may encourage investment from overseas companies into this country.

Credit other relevant points/implications, including examples not linked to psychopathology.

AO2 – application

- If research (such as the investigation described) suggests that depressives are better able to manage their condition following CBT and return to work, then it may benefit the economy to make treatment more widely available, improve funding, etc.
- Psychological research such as this plays an important role in sustaining a healthy workforce and reducing absenteeism.

Credit other relevant application points.

2

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

1 mark for each of the following points:

- The total observation time for each parent was 10 minutes.
- The psychologist made 20 observations for each parent.
- To generate 20 observations for each parent she must therefore have recorded her observation every $\frac{1}{2}$ minute or every 30 seconds.

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

1 mark for the correct answer: 30%.

Plus

1 mark for showing correct workings: 12 divided by 40 multiplied by 100.

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

1 mark for primary data.

3

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.

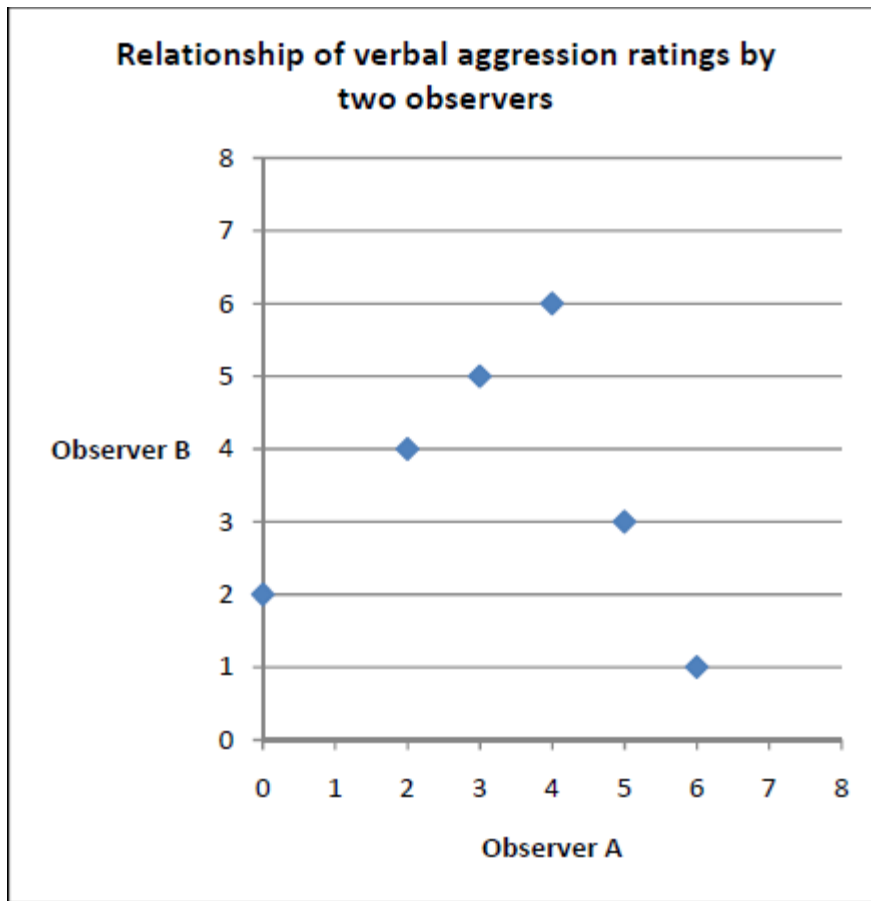
(a) **AO2 / 3 = 4**

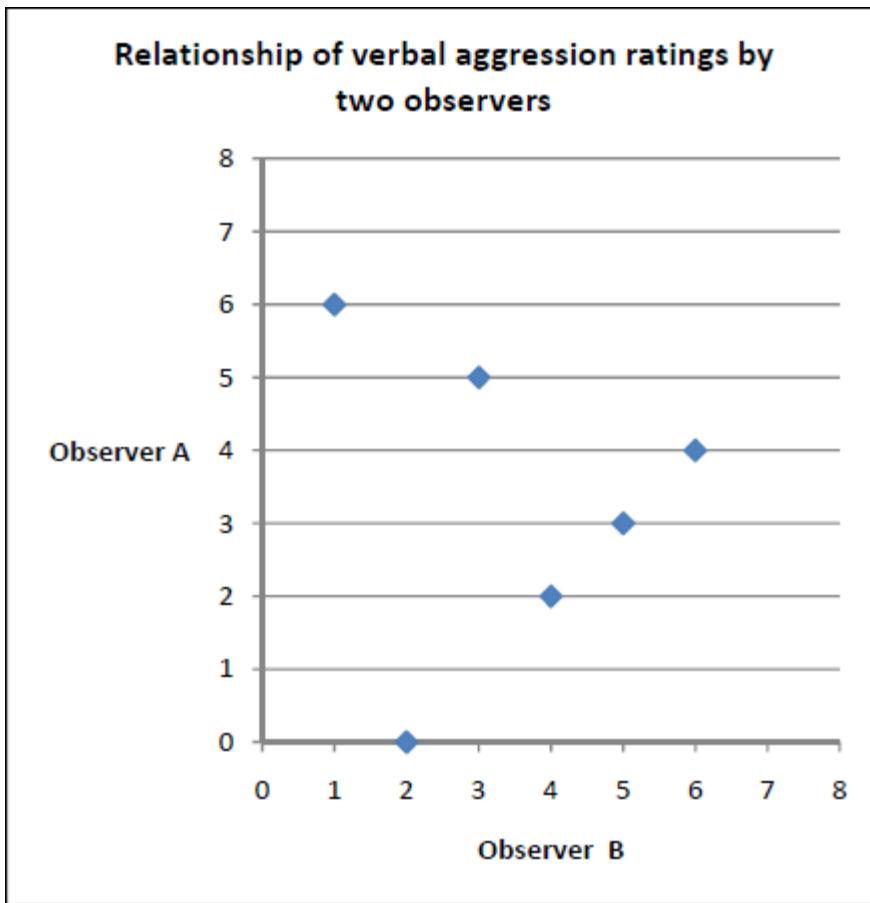
For any credit, candidates must sketch a scattergram.

For full marks, candidates should provide an appropriate title for the scattergram, label each of the axes appropriately and plot the data accurately on the scattergram.

Each of the examples below is a full mark answer because:

- it is clearly a sketch of a scattergram
- the data are appropriately plotted
- the labels of the axes and the title taken together show full understanding of the nature of the data.





(b) **AO2 / 3 = 4**

For full marks, candidates should give a reasonably detailed explanation eg she is concerned because the observers should both recognise the same types of verbal behaviour as aggressive and you would expect their tallies to be very similar. In this case, the observers disagree in every 10-minute time interval even though they are both watching the same child and should be using the same criteria. In some time slots, there is a really big difference in the number of acts.

This suggests that the observers have interpreted the criteria differently or that, at certain times, one observer was more vigilant than the other (4 marks).

1 mark – ‘because the observers do not agree with each other’.

3 further marks for elaboration.

Candidates who simply describe what is meant by inter-rater reliability can gain no marks.

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

1 mark for identifying the appropriate test – Spearman’s Rho or Pearson’s (with appropriate justification).

2 further marks for explaining why it is appropriate ie the psychologist is testing for a correlation and the data that can be treated as ordinal.

Candidates can gain no marks on this question if their choice of statistical test is inappropriate.

(d) **AO2 / 3 = 4**

1 mark for a very brief answer eg 'better training for the observers'
3 further marks for elaboration.

There is a breadth / depth trade-off here. Candidates can elaborate on one improvement eg explain how the training might be improved or outline several improvements in less detail eg establish clearer criteria for categorising verbal aggression, filming the child so that the observers can practise the categorisation.

4

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

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

One mark for either B or C.

One mark for an appropriate advantage of using open questions.
Likely points: open questions provide depth / detail / greater diversity of responses / more meaningful information in the response; they avoid participant frustration associated with fixed choice responses.

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

One mark for an appropriate conclusion that might be drawn, eg: the majority of people **regard themselves** as kind and helpful people. (Accept alternatives such as 'see themselves, believe or think they are / say they would')

One mark for justification of the answer with reference to the data given, eg: the number of people who reported they would help the person is much higher than any other response given (about 75% said they would help the person).

Accept other valid conclusions with an appropriate matching justification.

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

Up to 2 marks for an appropriate experimental hypothesis. For full credit the hypothesis must be a testable statement and contain both the IV and DV.

Possible answers for 2 marks:

Non-directional: There is a difference in the number of participants who go to help / help someone when the participant waits alone and when the participant waits with another person.

Directional: More participants who wait alone go to help / help someone than participants who wait with another person. (Accept 'Fewer'.)

Accept null version of the hypothesis.

Possible answers for 1 mark:

There will be a difference in the number of participants who go to help / help in Condition 1 and Condition 2

People who wait alone are more likely to go to help / help than people who wait with someone else.

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

One mark for identification of a possible extraneous variable.

Likely answers: the behaviour of the interviewer who 'falls'; the behaviour of the confederate in the waiting room. Accept EVs based on participant variables eg gender and appropriate condition variables such as 'noise.'

One mark for explaining why the EV should be controlled.

One mark for explaining how it could be controlled.

Possible answers:

The behaviour of the interviewer who falls must be the same – the same sounds and cries so that each participant has the same incident to react to. This could be controlled by using a taped recording of the falling and crying out.

The behaviour of the confederate must be the same so that each participant has the same environment in the waiting room. This could be controlled by using the same person as a confederate who has a script he / she follows for each participant.

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

One mark for identification of the experimental design as independent groups / measures.

Up to 2 marks for explanation of why this is a suitable design for this study.

Likely points: the participants can only be exposed to the person 'falling' once (1) as they will then have some understanding of what the study is trying to find out and their behaviour will be affected by this knowledge (lack of naivety) (1).

Maximum of 1 mark for generic explanations not linked explicitly to the study

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

Up to 2 marks for an outline of the procedure of random sampling:

Possible answer:

Put the name of every first year student at the university into a hat (number every first year student)(1).

Draw out 40 names or numbers for the sample (use a random number table / computer program to generate a set of 40 numbers – this represents the sample) (1).

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

One mark for an appropriate suggestion.

Likely answer: Bar chart / bar graph, frequency graph. Accept pie chart.

One mark for justification of the suggestion.

Likely point: the display clearly demonstrates the numerical difference between the two conditions. Credit discrete data / categorical data.

If more than one graphical display is listed – mark the first answer.

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

For each of the TWO points, allow one mark for identification of the point and one further mark for discussion of why that point should be raised when the participants are debriefed. Max 2 marks for each point.

For full marks at least one of these points must focus on imparting the aim / purpose of the study or detail of the two conditions.

One further mark for discussion of the chosen point.

Maximum 2 marks if only ethical issue(s) discussed. These 2 marks can only be given for **one** ethical issue (1) that is appropriately discussed (1).

Likely points: explanation of the aim of the study; explanation of the use of independent groups; ethical issues, (these include deception, protection from harm / treating participants with respect; right to withdraw data from the study.)

Verbatim answers are likely to be credited with a maximum of two marks as there would be no discussion / explanation.

5

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- 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) **[AO3 = 1]**

One mark for answers either:

- referring to the strength and the direction of the relationship – a positive correlation between the number of hours spent reading fiction and the empathy test score.
or:
- describing the relationship – the more hours spent reading fiction, the greater the empathy test score.

No credit for just stating type of correlation eg strong positive.

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

One mark for naming a test: Spearman's rank order correlation / rho or Pearson's product moment correlation.

One mark for justification. For Spearman's rank order correlation accept: not all data is interval – data collected for empathy test score most likely treated at ordinal level of measurement due to self-report.

For Pearson accept: Pearson's product moment correlation is a robust test, even if not all data can be treated as truly interval.

Just stating ordinal / interval no credit. Accept ordinal or interval providing this is justified with reference to at least one variable.

Unlikely but allow for an informed argument made for treating both sets of data at interval level.

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

1 mark for a knowledge of a way (not just naming a type of validity) and 2nd mark for explaining how this would be implemented in this case. Most likely answers will address face validity or concurrent validity, but accept any other way such as construct validity, content validity, criterion validity and predictive validity.

For full marks, the answer must refer to either the empathy questionnaire or empathy test items. The 'way' need not be named or defined.

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

One mark for the identifying a methodological limitation of the study.

Likely answers: size / composition of sample / one school only; for test of empathy – no evidence of testing reliability; parental involvement in ‘time spent reading questionnaire’; self-report measures; correlation study.

One mark for a brief explanation.

Suggested explanations might cover: limits to generalisation; confidence in a test and its findings rests on it being deemed reliable; social desirability of parental responses and consequent bias; honesty of reporting / memory recall; cause and effect issues in correlation studies.

Accept any other plausible answers.

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

Up to three marks for a discussion of reasons for correlation studies rather than experiments when investigating behaviour.

Likely answers: unethical / impossible to manipulate these variables (reading and empathy in children) to investigate cause and effect; impractical to sometimes do an experiment; may discover a link between two existing variables which might suggest future research ideas; interested in relationships **rather than** a causal explanation.

Accept comparison with the experimental approach.

For full marks, the answer must be coherent and applied to this study.

Maximum of two marks for general answers not applied to this study.

(f) **[AO3 = 8]**

Up to 8 marks for answers demonstrating an ability to design an experiment effectively. Answers should refer to:

- clearly identified independent and dependent variables and at least one extraneous variable identified and control suggested;
- the experimental design – independent groups, repeated measures or matched pairs;
- detail of sample;
- materials required for carrying out the research, eg task for assessing levels of recall, timing device if needed;
- sufficient procedural details to carry out a replication (might include standard instructions, ethics, etc.)

Note: standardised instructions and ethical issues are not required for full marks.

Mark bands

8 – 7 marks	Very good answers All 5 points well addressed and some sound justification. Answer shows sound knowledge and understanding and an ability to design an appropriate experiment. The proposal is coherent and feasible, and includes details of all the essential elements of the chosen design. Information allows for clear understanding of the proposed design. There may be some minor omission(s) at the bottom of the band.
6 – 5 marks	Good answers 3 or 4 points well addressed and some justification. The design shows knowledge and understanding and some ability to design an appropriate experiment. The proposal is feasible but may lack the clarity and coherence of the top band. There may be some inaccuracies and omissions.
4 – 3 marks	Average to weak answers At least 3 points are addressed and attempt at justification. The answer shows some knowledge and understanding but detail of the proposal may lack clarity. There are inaccuracies and omissions.
2 – 1 marks	Poor answers 1-2 points are addressed. There must be some relevant material. The experimental method may not be obvious. There may be substantial confusion, inaccuracy and / or irrelevance.
0 marks	No relevant content

6

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) **AO3 = 4**

Content analysis is a way of analysing data such as text using coding units such as themes. In this case mothers were asked to write down how their child behaved, so students might suggest.

Create a checklist / categories

Relevant example(s) of behaviours eg aggression, crying

Read through the diaries / mothers' writing / reports

Counting behaviours or tallying

Compare before and after day care

Any 1 of these equals 1 mark

Any 2 of these equals 2 marks

For 3 marks any 3 components but must refer to reading diaries / mothers' writing / reports.

For 4 marks any 4 components but must refer to reading diaries / mothers' writing / reports.

ie Max 2 marks if there is no reference to reading diaries.

AO3 Knowledge and understanding of content analysis
4 marks Effective explanation Explanation is accurate, reasonably detailed and demonstrates sound knowledge and understanding of how content analysis could be used. Includes reference to both coding / categorizing and counting.
3 marks Reasonable explanation Explanation is generally accurate but less detailed and demonstrates reasonable knowledge and understanding of how content analysis could be used.
2 marks Basic explanation Explanation demonstrates basic knowledge of how content analysis could be used.
1 mark Rudimentary explanation Explanation demonstrates rudimentary knowledge of how content analysis could be used.
0 marks No creditworthy material.

(b) **AO3 = 4**

Credit all possible limitations of this investigation such as mothers not having time to write much, or to problems in the analysis such as difficulties deciding on appropriate categories. Other limitations could be demand characteristics, mothers dropping out of the study, bias in recording, lack of control of time spent in day care, nine-month-olds not representative of all young children etc. Also ethical issues such as maintaining confidentiality could be made relevant.

Students may explain one limitation in detail, or more than one in less detail.

AO3 Knowledge and understanding of limitations of this investigation
4 marks Effective explanation Explanation is accurate, reasonably detailed and demonstrates sound knowledge and understanding of one or more limitations of this investigation.
3 marks Reasonable explanation Explanation is generally accurate but less detailed and demonstrates reasonable knowledge and understanding of one or more limitations of this investigation.
2 marks Basic explanation Explanation demonstrates basic knowledge of one or more limitations of this investigation.
1 mark Rudimentary explanation Explanation demonstrates rudimentary knowledge of one or more limitations of this investigation.
0 marks No creditworthy material.

7

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 = 4**

As Luca was in a poor quality orphanage for four years cognitive impairment is likely. Answers could also refer to Bowlby's MDH and possible consequences such as affectionless psychopathy and problems with later relationships. Reactive attachment disorder and physical effects would also be relevant.

1 mark or 2 marks for identification of possible negative effect(s), eg Luca may have problems forming relationships. [1 mark for identifying one negative effect, 2 marks for identifying two or more.]

Up to 2 additional marks for some elaboration of two or more effects or a more detailed elaboration of one effect.

(b) **AO3 = 4**

Strengths

Rich data, high ecological validity, investigates a situation which could not be set up for ethical reasons.

Limitations

Selection from large amounts of data may lead to observer bias.

Findings from one individual can't be generalised to others.

1 mark each for identification of a strength / limitation. Second mark for some elaboration.

For example, an advantage of a case study is that it provides lots of detail (1 mark). This gives great depth and understanding of this single individual (2 marks).

8

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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:

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- 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) **AO3 = 2**

Confidentiality could be maintained by making sure individuals are not identifiable when reporting the case study. This could be done by using a different name or initials, avoid publishing details of address, schools etc.

1 mark for identification of a relevant way.

2nd mark for some elaboration (which could be an example) or for identification of a second way of maintaining confidentiality.

(b) **AO2 = 2**

Psychologists may use psychological tests eg IQ testing. They could observe his behaviour in different situations. They might interview people, such as family members, to find out the circumstances of his early life.

1 mark for simply naming any appropriate techniques such as IQ test, observation or interviews.

2nd mark for some elaboration.

(c) **AO3 = 4**

The main limitation is that each individual, and their experience, is unique and the results cannot therefore be generalised to others. Evidence from an individual's past may be difficult to verify.

Researchers may get to know the individual well, which may lead to loss of objectivity.

Although description of specific case studies is not relevant, candidates may refer to examples as part of and explanation of limitations.

AO3 Knowledge of limitations of case studies
4 marks Accurate and reasonably detailed Accurate and reasonably detailed answer that demonstrates sound knowledge of at least one limitation.
3 marks Less detailed but generally accurate Less detailed but generally accurate answer that demonstrates relevant knowledge of at least one limitation.
2 marks Basic Basic answer that demonstrates some relevant knowledge of one or more limitations, but lacks detail and may be muddled.
1 mark Very brief / flawed Very brief or flawed answer demonstrating very little knowledge of limitations.
0 marks No creditworthy material.

9

(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.

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.

10

(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.

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 explains 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**

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**

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.