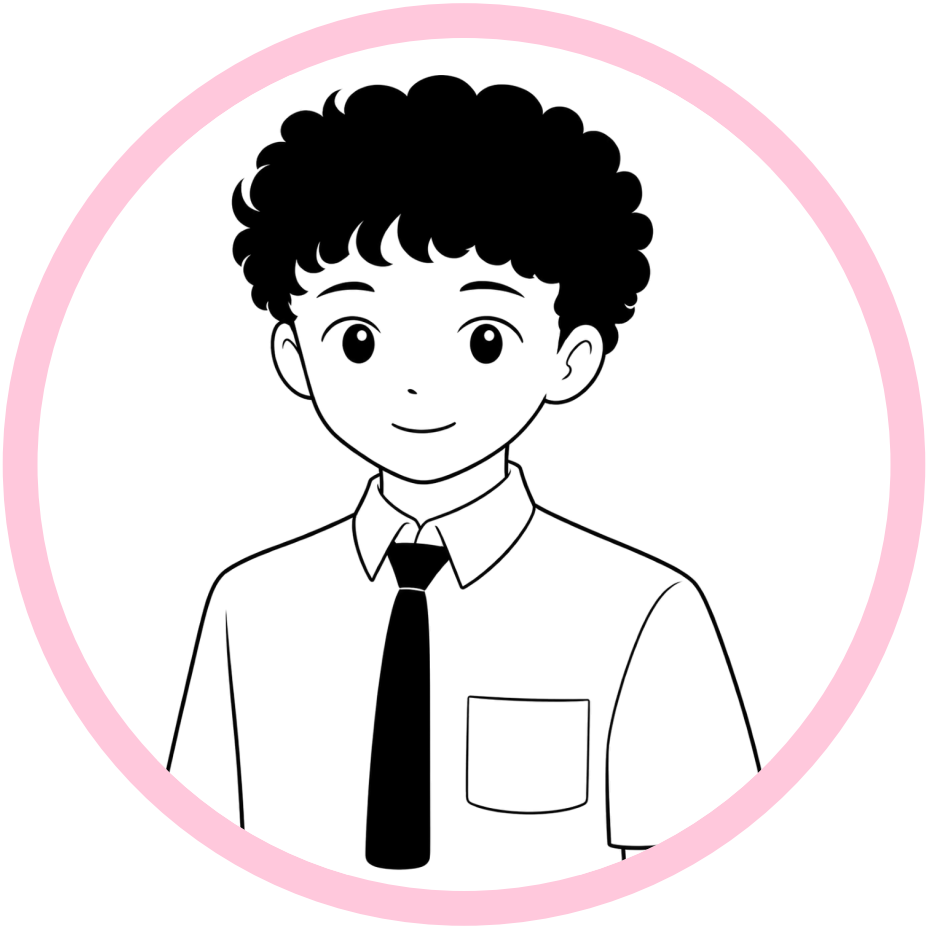
AQA A-LEVEL PSYCHOLOGY · 7182

PSYCHOLOGY



MARK SCHEME

3.2.3 EXPERIMENTAL METHOD

SCORE	PERCENTAGE
/496	%

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Q1.

(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]**

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.

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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)

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

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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.
	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.

Q2.

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

1 mark for identifying the type of data as quantitative data.

Plus

1 mark for either of the explanations below:

- the data is numerical.
- the number of participants who completed the questionnaire in each condition.

OR

1 mark for explaining the type of data as primary data.

Plus

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1 mark for either of the explanations below:

- the data is collected first hand (directly) from the participants.
- data is collected for the purpose of the investigation.

OR

1 mark for explaining the type of data as nominal/categorical data.

Plus

1 mark for either of the explanations below:

- the data is presented in categories/is discrete.
- the number of participants who did and did not complete the questionnaire in each condition.

If students identify more than one type of data, take the first type as the basis for their answer. If the data is not identified or identified incorrectly, no credit can be given for an explanation.

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

1 mark for the likely outcome: more participants in condition 1 will complete the questionnaire than in condition 2/fewer participants in condition 2 will complete the questionnaire than in condition 1.

Plus

2 marks for clear and coherent explanation
1 mark for explanations that are limited or muddled or for explanations not linked to outcome
0 marks for an incorrect or irrelevant explanation

Possible content:

- accept reference to normative social influence – participants will follow the majority to avoid rejection/fit in
- the participants in condition 2 experienced social support/disobedient role models and so were more likely to defy the researchers
- accept reference to diffusion of responsibility/increased confidence to defy orders in condition 2
- accept explanation based on relevant studies, eg Asch variations.

Credit other relevant social influence explanations.

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

1 mark for random allocation of participants to each condition.

Plus

3 marks for explanation of how this could be conducted in this experiment
1 mark for each bullet

- each participant is assigned a number or identified by name
- the numbers/names are placed into a random number generator/hat/lottery method

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- the first participant drawn is assigned to condition 1, the second to condition 2, etc. OR the first 15 participants are assigned to condition 1 and the next 15 are assigned to condition 2.

OR

1 mark for using a matched pairs design.

Plus

3 marks for explanation of how this could be conducted in this experiment

1 mark for each bullet

- participants should be matched on a variable that is relevant to the experiment
- this could be ascertained through the use of a pre-test e.g. completing a confidence questionnaire
- participants from each matched pair are allocated to different conditions.

Credit other plausible ways of addressing the question. To gain any credit answers based on repeated measures should be appropriately detailed e.g. parallel versions of the questionnaire, time lapse etc.

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

1 mark for the design is unrelated/independent groups/independent data

1 mark for the researcher is looking for a difference (between two conditions/sets of data) **or** an association/relationship (between two variables).

No credit for answers referring to correlations.

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

1 mark for stating that the value of chi squared is significant (at the 5% level).

Plus

1 mark for explanation:

the calculated/observed value (3.97) is more than/exceeds the critical/table value of 3.84/at 5%.

Q3.

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

1 mark

A

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

2 marks for identification of the operationalised dependent variable: running time in seconds/time in seconds taken to run.
1 mark for dependent variable not operationalised: time in seconds; running time.
0 marks for incorrect reference to speed or to the IV.

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

1 mark for explaining **either** you need to have continuous data **or** scores for each participant in order to draw a histogram.

Plus

1 mark for identifying that the data represents two separate conditions (with music/without music). Accept categorical/nominal.

Note: credit can be given for two separate conditions if the student explains clearly why this would make a histogram "inappropriate".

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

1 mark for each bullet point:
- a bar chart
- appropriate X-axis label eg 'With or without music'; 'Auditory Condition', etc.
- appropriate Y-axis label eg 'Mean/Average (400m) time in seconds'.

Note: these are independently awarded marks, eg candidates can achieve 2 marks for correctly labelled axes despite an incorrect graph type

Note: axis labels are interchangeable.

(e) **[AO2 = 2 AO3 = 2]**

Mean:

1 mark for interpreting what the mean times suggest about the effect of music on the participants' 400m performance – participants run faster with music (take less time to run 400 metres) or participants run more slowly without music (take more time to run 400 metres). Accept alternative wording.

Plus

1 mark for an accurate justification about the difference in the mean scores in each condition – mean time is greater in condition A than condition B (or mean time is lower in condition B than condition A).

Standard deviation:

1 mark for an accurate comment about what the standard deviations suggest about the spread of scores in each condition – performance is more consistent in condition A than condition B (or performance is less consistent in condition B than condition A). Accept alternative wording.

Plus

1 mark for a justification about the difference between the standard deviations in each condition – standard deviation is smaller in condition A than in condition B (or standard deviation is greater in condition B than condition A).

Note: **0 marks** for just stating the data from the table, eg the mean time with music is 117 whereas it is 123 without music.

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

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Marks are for calculations and/or numerical answer – no need to show unit (%)

4 marks for the correct answer given to three significant figures: 4.88 (even if no correct workings are shown).
3 marks for correct answer **not** given to three significant figures eg 4.878 or 4.9.
2 marks if incorrect answer is provided even if all working is correct.
1 mark if incorrect answer and workings are partially correct eg one or two of the correct steps.
0 marks if the incorrect answer is given to three significant figures.

Correct workings:
123 − 117 = 6
6 ÷ 123 =0.048780
0.048780 × 100 = 4.878
Answer = 4.88

Note: alternative methods used for working may be creditworthy.

(g) **[AO2 = 5]**

1 mark for each bullet point:

A t-test is an appropriate choice of test for this data because
- a difference between the two sets of data is predicted
- the data is of interval/ratio level
- a repeated measures design has been used.

Credit other appropriate reasons e.g. reasons related to possible normal distribution, power of the test.

Plus

1 mark for each bullet point:

- the result is not significant (at the 5% level)
- because the calculated value of t (1.4377) is less than the critical/table value of t, which is 1.833 (at 0.05, for a directional hypothesis where df is 9).

(h) **[AO1 = 3]**

2 marks for a clear and coherent definition of a Type II error.

A Type II error would occur where a real difference in the data is overlooked as it is wrongly accepted as being not significant, accepting the null hypothesis in error (a false negative).

1 mark for a limited or incomplete definition of a Type II error.

Plus

1 mark for a reason for why the 5% level of significance is used in psychological research.

The 5% level is used as it strikes a balance between the risk of making the Type I and II errors (or similar).

(i) **[AO2 = 2 AO3 = 1]**

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1 mark for identification of **one** appropriate extraneous variable eg type/rhythm of music/equipment/environmental variables.

Note – participant variables only acceptable if feasibly could have changed in a week eg illness/hydration level/injury/etc.

Plus

1 mark for an explanation of why it is important to control their chosen variable in the context of this study ie the impact on the DV.

Plus

1 mark for how the stated variable could be controlled.

(j) **[AO1 = 6]**

Level	Marks	Description
3	5 – 6	Knowledge of the process and purposes of peer review is clear and generally accurate. Specialist terminology is used appropriately.
2	3 – 4	Some knowledge of the process and/or purposes of peer review but there may be some omissions/lack of clarity. There is some appropriate use of specialist terminology.
1	1 – 2	Knowledge of the process and/or purposes of peer review is present but there may be serious omissions and/or inaccuracy. Specialist terminology is either missing or inappropriately used.
	0	No relevant content.

Possible content:

Process
- other psychologists check the research report before deciding whether it could be published
- independent scrutiny by other psychologists working in a similar field
- work is considered in terms of its validity, significance and originality
- assessment of the appropriateness of the methods and designs used
- reviewer can accept the manuscript as it is, accept with revisions, suggest the author makes revisions and re-submits or reject without the possibility of re-submission
- editor makes the final decision whether to accept or reject the research report based on the reviewers' comments/recommendations
- research proposals are submitted to panel and assessed for merit.

Purposes
- to ensure quality and relevance of research, eg methodology, data analysis etc
- to ensure accuracy of findings
- to evaluate proposed designs (in terms of aims, quality and value of the research) for research funding.

Credit other relevant material.

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Q4.

(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.

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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**

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

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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.

Q5.

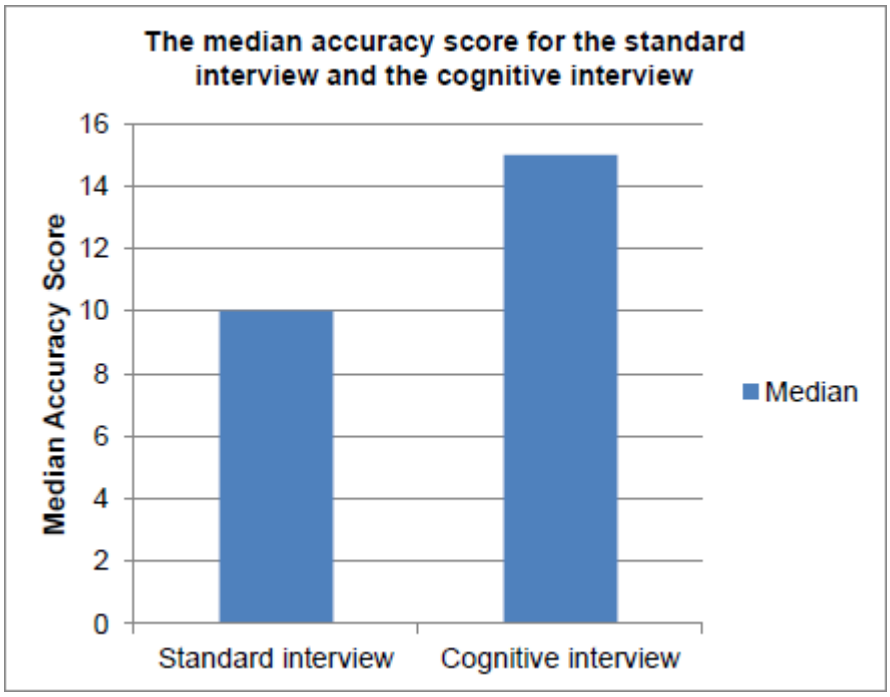
(a) **[AO2 = 6]**

1 mark for each of the following:

- display as a bar chart

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- both axes labelled correctly
- an informative title with reference to the IV and DV
- y axis has appropriate scaling
- bars are separate
- bars are plotted reasonably correctly.



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

Award **one mark** for each of the following points:

- the researcher needs to ensure that the two groups are matched for key variables
- example of at least one key variable – any that might reasonably be expected to affect memory in this situation, eg eyesight, age, intelligence
- all participants should be pre-tested / assessed for the key variable / variables
- for each person in one condition, the researcher should assign a 'matched' person in the other condition.

Credit other relevant points or this information embedded in the example.

Q6.

(a) **[AO1 = 1 AO3 = 2]**

1 mark for identification of the correct experimental design – independent groups / independent measures.

Plus

2 marks for a clear and coherent outline of an advantage using appropriate terminology.

OR

1 mark for a brief / vague / muddled outline of an advantage.

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Possible advantages:

- performances not affected by order effects as people only do one condition
- demand characteristics less likely as participants only aware of own condition
- same task / materials can be used in both conditions as participants are always naïve to the task.

Credit other relevant advantages.

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

2 marks for a clear and coherent outline of how participants are used in either a repeated measure or a matched pairs design.

1 mark for a vague, muddled or incomplete outline of a repeated measure or a matched pairs design.

If the answer to **(a)** is incorrect, credit a different design to that given.

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

1 mark for an appropriate and plausible suggestion.

Plus

1 mark for an appropriate justification.

Likely suggestions:

- testing all participants in the same room
- making sure that all participants hear the same instructions
- ensuring that all participants are tested by the same researcher.

Credit other relevant suggestions.

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

3 marks for an appropriate non-directional (or directional) operationalised hypothesis: 'There is a difference in the number of ideas generated when participants work alone and when they work in groups.'

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

1 mark for a muddled statement with both conditions of the IV and 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.

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

1 mark: 3 (in each group)

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

1 mark for naming a suitable measure of dispersion (range or standard deviation).

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

1 mark for stating that the statistic calculated (either the range or the SD) would be greater in **Condition A** than in **Condition B**.

or written as

1 mark for stating that the statistic calculated (either the range or the SD) would be less in C**ondition B** than in **Condition A**.

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

Marks for a clear description of a practical way as follows:

1 mark – all the participants allocated a number from 1 to 15.
1 mark – the 15 numbers are put in a hat.
1 mark – assign first three numbers drawn to a group and repeat process for other 4 groups.

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

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

1 mark : for each condition, the overall number of ideas generated should be divided by the overall total of 185.

Plus

1 mark : the result for each condition should then be multiplied by 100 to give the percentage.

(j) **[AO2 = 6]**

Level	Marks	Description
3	5 – 6	Both elements of required content are clear and mostly well detailed. The debrief is all in verbatim format.
2	3 – 4	Both elements of required content are present. The answer lacks detail and / or clarity in places. Some of the answer is in verbatim format.
1	1 – 2	There is some information about at least one element of required content. The answer lacks clarity. Verbatim format is lacking. For one mark there must be some relevant content, eg an optional point about ethics.
	0	No relevant content.

Required content:

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- explanation of the aim: to see if creativity is affected by the presence or absence of others
- information about the other condition – in an independent design people need to know about the condition in which they did not take part.

Optional content:

- specific ethical issues, eg right to withdraw data / be informed of results / check of welfare
- general ethical considerations, eg respect for participants.

Q7.

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

2 marks for a clear and coherent explanation of the usefulness of the standard deviation in this study.

1 mark for a weak or muddled answer in which the impact of the difference in the SDs is alluded to.

- Useful to inform about the spread of scores.
- Indicates participant variables – as a group the people in Condition 1 are quite different / are more variable than those in Condition 2.

Credit answers which suggest that the SDs can be used to look for similarity or differences in variance.

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

2 marks for a clear, coherent outline of a relevant problem.

1 mark for a weak, muddled or very limited outline.

Possible problems:

- Direct observation of memory is not possible and must be inferred from the results / behaviour of the participants – this inference could be mistaken.
- The task given is rarely how normal memory functioning occurs because it is specifically designed to make measurement possible – the researcher therefore collects data that is only related to memory processing under experimental conditions.

Credit other valid problems.

Q8.

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

1 mark C

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

1 mark 4/5^{ths}

1 mark for workings 16 divided by 4 = 4 and 20 divided by 4 = 5 (so 4/5^{ths})

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

2 marks for a clear and coherent conclusion, plus relevant explanation based on the data.

1 mark for a vague/muddled conclusion.

Conclusion and explanation:

The training course appears to have a beneficial effect on teacher confidence as the majority of them (16 out of 20) say their confidence has improved.

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

2 marks for a clearly operationalised dependent variable: the DV is whether the teachers thought their confidence in managing difficult behaviour was better, worse or the same after the course.

1 mark for a dependent variable that is not fully operationalised eg teachers' confidence/how they felt after doing the course.

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

1 mark repeated measures design

Plus

2 marks for a clear and coherent explanation of why this design is appropriate in this case

1 mark for a vague or muddled explanation of why this design is appropriate in this case

Content:

It is important to ask the same participants to consider their level of confidence before and after taking part in the training in order to see whether their confidence has changed. It would not make sense to ask one group of people before training and another group of people after training because there may be individual differences in their levels of confidence anyway.

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

1 mark calculated value of S = 2

Plus two marks for any two of the following points:

1 mark this is determined by converting the differences or outcomes to signs + or −

1 mark then taking the numerical value for/number of participants with the least common/frequent sign

1 mark any nil differences are ignored

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

2 marks for a clear and coherent explanation

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1 mark for a vague/muddled explanation

Content:

researchers use statistical tests to determine the likelihood that the effect/difference/relationship they have found has occurred due to chance.

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

1 mark for each valid behavioural category suggested.

For credit the behaviour should be an **observable** behaviour that is disruptive or disobedient and would be likely to occur in a primary school classroom eg throwing something, shouting, banging on the desk.

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

Award marks for a suitable record sheet/tally chart in table form.

1 mark for each bullet point addressed

- Table with spaces for tallies/recordings of instances
- Separate spaces for first and last 10 minutes
- Headed correctly with the six category spaces (may include the two used in answer to part (h) but names of categories not essential here)

No marks for drawing a bar chart or graph.

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

Level	Marks	Description
2	3 – 4	A relevant problem is clearly identified. The explanation of how the observation would be improved by addressing this problem is appropriate and effective. The answer is generally coherent with effective use of appropriate terminology.
1	1 – 2	A relevant problem is identified. There is partial/limited explanation of how the observation would be improved by addressing this problem. The answer lacks coherence and use of appropriate terminology.
	0	No relevant content.

Relevant problems:

- observer effect (as observation is overt) means pupils would behave differently because they are aware that they are being observed – could be addressed by carrying out a covert observation
- observer bias/lack of objectivity because the researcher is working alone – could be addressed by working as part of a pair for inter-observer reliability
- limiting observations to first and last 10 minutes means the data may not be a

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valid representation of disruptive behaviour in lessons. Need to carry out observations at other times during the lesson too.

Q9.

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

1 mark for naming the mean.

Plus

1 mark for justification: the mean is the most sensitive method as it takes all the scores in each data set into account OR there are no anomalous results / outliers / freak scores in either set of scores, so the mean will not be distorted.

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

Full credit can be awarded for answers based on the mean or the median.
A maximum of **2 marks** can be awarded for answers based on the mode.

Using the Mean

- **For 4 marks**, the **mean** is accurately calculated for both conditions (Group A = 5.6, Group B = 12.5) and calculations are included for both groups, ie totals in both conditions divided by 10 (number of scores).
- **For 3 marks**, there are two correct means and one set of calculations or vice versa.
- **For 2 marks**, there are two correct means and no calculations, **OR** one correct mean with calculations **OR** two sets of calculations but no correct mean.

- **For 1 mark**, there is one correct mean or one set of calculations.

Using the Median

- **For 4 marks**, answers for each condition are correct (Group A = 5.5, Group B = 12.5) and for each condition scores are arranged in ascending order with middle values indicated.
- **For 3 marks**, there is one correct median and two sets of scores correctly arranged as calculations, or vice versa.
- **For 2 marks**, there are two correct medians and no calculations, or one correct median and one set of scores correctly arranged as calculations.
- **For 1 mark**, there is one correct median or one set of scores correctly arranged as calculations.

Using the Mode

- **For 2 marks**, there are correct modes for each group (Group A = 4, Group B = 11 and 14).
- **For 1 mark**, there is one correct mode.

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

1 mark for stating that this is due to retroactive interference.

Plus

1 mark for either of the following explanation / elaboration points:

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- because the material is similar in both conditions
- new / recently learnt / acquired information has disrupted / interfered with / affected the recall of old / previously learnt / acquired information
- response competition has occurred.

Q10.

(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.

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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.

Q11.

(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

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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.

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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.

Q12.

[AO3 = 4]

Level	Marks	Description
2	3 – 4	Explanation of problem and way of dealing with it is clear and mostly appropriate. The answer is generally coherent with effective use of specialist terminology.
1	1 – 2	Some explanation of problem and/or appropriate way of dealing with it. The answer lacks accuracy and detail. Use of specialist terminology absent or inappropriate.
	0	No relevant content.

Possible content:

- Problem – random sampling; the 3 pm group might simply have been better at

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maths than the 3 am group. The solution would be a matched pairs (matched on maths ability) or repeated measures design.

- Problem – use of different maths tests, with no evidence that they were matched for difficulty. The solution would be to use the same set of maths problems if a matched pairs design was used.
- Individual differences due to independent groups design so use repeated measures but would need different but equivalent tests and counterbalancing.
- Other issues, such as individual differences in biological rhythms ('owls' versus 'larks') confounding results. Such answers should be marked on their merits – is the problem plausible and is the solution sensible?

Q13.

[AO2 = 9]

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.

Q14.

[AO2 = 6 AO3 = 6]

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Level	Marks	Description
4	10 – 12	**All three** elements are present. Suggestions are generally well detailed, practical and justified showing sound understanding of experimental design and data analysis. There is sufficient information for the study to be implemented. The answer is clear and coherent. Specialist terminology is used effectively. Minor detail and/or justification is sometimes lacking.
3	7 – 9	**All three** elements are present. Suggestions are mostly sensible and practical showing some understanding of experimental design and data analysis. There is some appropriate justification. Implementation of some aspects is possible but detail is lacking. The answer is mostly clear and organised. Specialist terminology is mostly used effectively.
2	4 – 6	**At least two** elements are present. Some suggestions are appropriate but others are impractical or inadequately explained. Justification is often incomplete or inappropriate. Implementation would be difficult. The answer lacks clarity, accuracy and organisation in places.
1	1 – 3	**At least one** element is present but knowledge is very limited. Justification is either absent or inappropriate. Implementation would not be possible. The answer as a whole lack clarity, has many inaccuracies and is poorly organised.
	0	No relevant content.

Three elements to be credited:

Design

- The experimental design to be used (repeated/independent/matched).
- IV and DV – note the DV must be suitable for ordinal level analysis
- Any relevant aspect of control eg duration of study, control of relevant environmental variables eg office heating, noise pollution – note this need not be exhaustive

Materials/Apparatus

- The self-devised instrument for measuring mood should be one that yields ordinal level data
- A rating scale is the most suitable measure eg ratings from 1–10 where 1 = very unhappy and 10 = very happy. Statement(s) from the rating scale should be outlined
- Alternatively students could describe a questionnaire and give examples of suitable items

(Note – although essential to the study plants need not be described)

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Data analysis

- Descriptive statistics should include a measure of central tendency and dispersion (given the requirement for an ordinal level measure the most appropriate here would be the median and range but can award some credit for other measure of central tendency and dispersion)

- Suitable inferential analysis would be a test for differences between two conditions suitable for data at the ordinal level (Mann Whitney or Wilcoxon). Whichever test is chosen it should be consistent with the proposed experimental design.

(Note - descriptive statistics might also include appropriate graph/bar chart but this is not essential)

Q15.

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

1 mark for a brief explanation

Plus

1 mark for elaboration

Possible content:

Control for individual differences so that the researcher can be more certain that the effect is not due to characteristics such as gender, personality etc.

Credit other relevant advantages.

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

1 mark - Value of 'S' is 2.

Plus

1 mark for explanation - 'S' is the frequency of the least common difference. There are 8 positive differences, 2 negative differences and 2 ties.

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

1 mark for identifying the correct value of N (N = 10, total number of differences)

Plus

1 mark for stating that for an N of 10, a value of 'S' = 2 is not significant at the $p \leq .05$ level.

Q16.

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

1 mark for a brief explanation

Plus

1 mark for elaboration

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Possible content:

Control for individual differences so that the researcher can be more certain that the effect is not due to characteristics such as gender, personality etc.

Credit other relevant advantages.

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

1 mark - Value of 'S' is 2.

Plus

1 mark for explanation - 'S' is the frequency of the least common difference. There are 8 positive differences, 2 negative differences and 2 ties.

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

1 mark for identifying the correct value of N (N = 10, total number of differences)

Plus

1 mark for stating that for an N of 10, a value of 'S' = 2 is not significant at the p ≤ .05 level.

Q17.

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

1 mark for a brief explanation

Plus

1 mark for elaboration

Possible content:

Control for individual differences so that the researcher can be more certain that the effect is not due to characteristics such as gender, personality etc.

Credit other relevant advantages.

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

1 mark - Value of 'S' is 2.

Plus

1 mark for explanation - 'S' is the frequency of the least common difference. There are 8 positive differences, 2 negative differences and 2 ties.

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

1 mark for identifying the correct value of N (N = 10, total number of differences)

Plus

1 mark for stating that for an N of 10, a value of 'S' = 2 is not significant at the p

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≤ .05 level.

Q18.

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**

In this experiment a pilot study could be used to:-

- check how long the participant should be given to look at the stimulus material
- check whether the pictures were appropriate and clear
- check whether 20 is an appropriate number of words to use
- check whether the words were appropriate
- check the participants understand the instructions and what they are required to do
- ask a few participants about their experience of taking part

Changes can then be made to the procedure if necessary, to avoid wasting time / money.
There is a depth / breadth trade off. Candidates may cover one point in detail or more than one in less detail.

Vague or general statements which simply state “to save time / money” , “to see of it works” ,
“to see if there is a difference” = 0
To test / change the hypothesis = 0

AO3 Application of knowledge of research methods
4 marks Accurate and reasonably detailed Accurate and reasonably detailed explanation that demonstrates sound knowledge and understanding of why a pilot study would be appropriate, including at least one detail from the experiment.
3 marks Less detailed but generally accurate Less detailed but generally accurate answer that demonstrates sound knowledge and understanding of why a pilot study would be appropriate, including at least one detail

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from the experiment.
2 marks Basic Basic answer that demonstrates some understanding of why a pilot study would be appropriate in this study, but lacks detail and may be muddled.
1 mark Very brief / flawed Very brief or flawed answer demonstrating very little understanding of why a pilot study would be appropriate in this study.
0 marks No creditworthy material.

(b) **AO3 = 2**

0 marks for a directional / correlational / null hypothesis.
1 mark for an appropriate non directional hypothesis where either or both variables are not operationalised e.g. memory will be different in the two conditions and / or when the hypothesis is not written as a statement e.g. " To see if ..." or " Is there.....?"
2 marks for an appropriate non directional hypothesis where both variables are operationalised e.g. there will be a difference in the number of words correctly recalled when words are presented with pictures and without pictures.

(c) **AO3 = 4**

Reasons for using an independent groups design rather than repeated measures include:-
There are no order effects because participants only do the task once.
The same words can be used in both conditions so one set of words is no easier to recall than the other set of words.
Demand characteristics are less likely because participants will be unaware of the other condition.
Credit other appropriate reasons.
Simply stating IGD is quicker / saves time = 0.
In each case 1 mark for a very brief / slightly muddled potentially relevant reason that could explain the use of IGD.
2nd mark for some elaboration of a reason that is relevant / appropriate to this study.

(d) **AO3 = 2**

The focus of this question is on understanding the outcome of this experiment.
Simply re-stating the data in table 1 = 0
e.g. The range for Condition 1 is 11 and for Condition 2 is 13.
Or The range is higher for Condition 1 than for Condition 2.
Or The median for Condition 1 is 13 and Condition 2 is 16.
Or The median for Condition 2 is higher than Condition 1.
1 mark for accurate reference to either median or range
e.g. more words were correctly recalled with pictures than without pictures.
Or The spread / dispersion of scores is larger with pictures than without pictures.
Or There is more individual variation with pictures than without.
2 marks for accurate reference to both difference and dispersion (spread) as above.

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Q19.

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 = 1]**

A median score is calculated by putting all the scores in order from lowest to highest (or vice versa) and finding the middle score in the set.

Credit explanations that refer to sets with even numbers of values, ie by finding the numerical mid-point between the two middle scores.

(b) **[AO3 = 1]**

One mark for identification of the dependent variable:

The estimate of how many marks would be scored on the maths test.

Accept alternative wording.

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

2 marks for a clear, testable statement containing both conditions of the IV and an operationalised DV.

There is a difference in the estimates men will give of their scores on a maths test and the estimates women will give of their scores on a maths test. (Accept a null version)

Men will give higher (or lower) estimates of their scores on a maths test than the estimates women will give of their scores on a maths test.

For 1 mark – a statement with both conditions of the IV and a DV which may not be operational or testable.

No marks for expressions of aim / questions / correlational hypotheses or statements with only one condition.

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

One mark for identification of the experimental design as independent groups / measures / samples. No credit if incorrect design is chosen.

One mark for an explanation of this design.
The participants in the male group are different people from those in the

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female group or reference to only participating in one condition.

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

Up to 3 marks for a clear explanation of the procedure for obtaining a random sample in this study:

- put all the names / numbers of the men (from the factory) in a hat / computer (1)
- draw out 15 names for the sample or get computer to randomly generate 15 numbers (1).
- repeat for all the women (of the factory) (1) or vice versa.

Accept other ways that would clearly generate a random sample.

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

Up to 2 marks for a suitable conclusion drawn from the data in **Table 2.**

One mark for the conclusion:
There is a difference in the expectations men and women have of their own numeracy skills.
Accept a directional statement such as:
Men think they are likely to achieve better scores on a maths test than women think they will achieve.

One mark for the justification:
The median estimate for men was much higher than that for the women.

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

Up to 3 marks for what comparison of the estimated and actual maths scores of the men and women indicates.

Men overestimated their numeracy skills / numerical ability / score they would get (or similar) (1 mark)

Women underestimated their numeracy skills / numerical ability / score they would get (or similar) (1 mark)

Overall conclusions:

- People / Men / Women are not very good at estimating our ability
- Expectations were wrong
- (Although estimates are different) ability was the same
- Men are over confident re ability
- Women under confident re ability

(1 mark for any of these)

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

Information must be written in verbatim form for more than 1 mark.

Essential points	Purpose / aim of the study Ethical point

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Optional points	Background information / Elaboration of the aim and conditions Any questions? Thanking for participation Interest in the results?

4 marks	**Verbatim** Both essential and at least one optional point are addressed clearly such that an understanding of the study is achieved. Information should be clear, relevant, sensible and logically structured.
3 marks	**Verbatim** Both essential points are addressed such that there is reasonable understanding of the study. There may be deficiencies in clarity, some irrelevance, illogical sequencing or inappropriate content.
2 marks	**Verbatim** Any 2 points are addressed. There may be omissions / irrelevances / muddle such that understanding of the study might be limited.
1 mark	There must be at least one relevant point. Information may be unclear / inappropriate / irrelevant such that understanding of the study would be very limited or most points addressed but not in verbatim form.
0 marks	No relevant information. Understanding of the study would not be possible.

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

One mark for a valid reason and a further mark for elaboration of the reason given.

Reason: to identify any possible flaws in (the design of) the study (1 mark).
Elaboration: to provide an opportunity to improve the study / or so that the researcher does not waste time collecting data that will have to be discarded (1 mark).

Accept any other valid answer.

Q20.

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 = 1]**

One mark for identifying the independent variable in this study.
Likely answer: whether the participants in the study have OCD or not.

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

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Award two marks for an explanation of why this study is a quasi-experiment.

Possible points: This study is a quasi-experiment because the IV (whether the participants have OCD or not) is pre-existing / naturally occurring (1) the IV has not been manipulated / could not have been controlled by the researcher (1) random allocation is not possible (1).

(c) **[AO3 = 1]**

One mark for identifying one relevant variable that could have been used to match participants in this study.
Likely answers: gender; age; health; IQ; ethnicity; weight.

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

Award one mark for an outline of an advantage of matched pairs and one further mark for an explanation of why this is an advantage. For two marks there must be some application to the study described.

One mark only for an advantage of matched pairs not linked to the study described.

Possible answer: One advantage of matched pairs is that participant variables / individual differences are controlled / reduced (1) so the researcher can be more confident that the results are due to OCD, rather than other variables (1).

Do not credit participant variables are eliminated / removed.

Q21.

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 = 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.

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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)

Q22.

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 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:

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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 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.

Q23.

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.

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(a) **[AO3 = 1]**

One mark for the independent variable.
Likely answers: the context of recall / whether participants recalled the words in the same room or a different room / the classroom or the school hall.
Reference to both conditions might be implicit rather than clearly stated.

(b) **[AO3 = 1, AO2 = 2]**

AO3

Award one mark for stating the likely outcome.
Likely answers: Participants who learned and recalled in the same context are likely to recall more words than those who learned and recalled in different contexts / there will be a higher mean number of words recalled in Condition 1 than Condition 2.
Accept alternative wording.

AO2

Award up to two marks for explanation of the likely outcome based on knowledge of retrieval failure as an explanation for forgetting. Credit reference to environmental cues / context triggering recall; the absence of cues / context in Condition 2.

For two AO2 marks there must be some reference to condition two's participants failing to retrieve / recall information.
Credit use of evidence and / or use of an example as part of the discussion.

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

Award up to two marks for an explanation of how random allocation to one of the two conditions might have been carried out. Two marks for a full explanation, one mark for a brief / vague answer.
Possible answer: All participants' names / numbers are placed into a hat / lottery system / computer (1) the first name drawn is assigned to condition one, the next to condition two / the first twenty are allocated to condition one, the second twenty to condition two (1).

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

Award up to two marks for an explanation of how participants could be matched and then allocated to the two conditions for a matched pairs design.
Possible answer: Participants are paired on some relevant variable (eg memory ability, IQ, age, etc.), (1) and then one from each pair is allocated to each condition (1).
Answers based on the use of identical twins can get full marks as long as there is some reference to the idea that twins are likely to have a similar level of recall.

Q24.

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)

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- AO3 evaluation, analysis, interpretation.

(a) **AO3 = 2**

One aim of the investigation is to see if the age of participants affects their ability to identify a person.
(Credit relevant alternatives)
1 mark for a very brief or muddled aim eg to investigate whether participants can identify a man in a photograph or to investigate EWT or to investigate memory. For 2 marks the aim must be more detailed eg to investigate the effect on EWT or to investigate EWT in a natural setting.

(b) **AO3 = 2**

Participants are less likely to show demand characteristics because in the first part of the experiment they are unaware they are taking part and so are likely to respond more genuinely. In real life settings research has high validity because the findings can be generalised to other similar situations. It is therefore more likely to be relevant to eyewitness testimony in court cases.
1 mark for a very brief or muddled answer eg high ecological validity.
2 marks for accurate elaboration.

(c) **AO3 = 4**

Opportunity sample 1 mark. Volunteer or random = 0 marks.
One limitation is the lack of a target population. This means that the sample is not representative of any population so there are problems in generalising the findings. However, selecting participants for availability is an appropriate way to select a sample when no names are available. Comparison with alternative sampling methods is creditworthy. 1 mark for identifying a limitation or advantage eg biased sampling. Further marks for accurate elaboration or identification of further limitations / advantages. Candidates may refer to one or more limitations, advantages or both. Candidates who identify the sample incorrectly can still gain marks for correct evaluation of opportunity sampling.

(d) **AO3 = 4**

Extraneous variables are anything other than the independent variable that could affect the dependent variable. In this study they could include situational variables such as how the researcher asked for directions or time of day, and participant variables such as gender or eyesight.
1 mark for identification of any possible extraneous variable in this study. Eg One possible extraneous variable is the length of time the researcher spends with each participant.
3 marks for accurate explanation of how this variable could have affected this study. This might have affected the results of this study because old people are more likely to have time to stop and chat than younger participants. They therefore spend longer giving directions and would therefore find it easier to identify the researcher.
1 mark for very brief or slightly muddled explanation.
Further marks for accurate elaboration.

Q25.

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

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- 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

(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.

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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 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)

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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.

Q26.

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]**

One mark for identifying independent measures / groups / samples / unrelated design.

Up to 2 marks for an explanation of any relevant advantage of using this design in this study.
1 mark for an advantage, 1 mark for application to the study.

Possible answer:
As participants will either be approached by a confederate wearing uniform or a confederate in everyday clothing / as participants only take part in one condition (1), they are unlikely to guess the aim of the study / there are no order effects (1).

One mark can be awarded for an advantage that corresponds to an incorrectly identified design.

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

Independent variable: whether the researcher was dressed in everyday clothing or a uniform / type of clothing.

Dependent variable: whether participants pick up litter / obey (or not) / the number of people who picked up a piece of litter.

No credit for “obedience” or “level of obedience” or “amount of obedience”.

- Award both marks for correct IV and DV that are not labelled but are in the order of the question.
- Award 1 mark for correct IV and DV that are not labelled and are not in the order of the question ie DV then IV.
- No credit for either IV or DV **alone** (if not labelled).

(c) **[AO1 = 1, AO2 = 2]**

AO1

1 mark for knowledge of likely outcome:
More people will pick up litter in Condition B than in Condition A / fewer people will pick up litter in Condition A than in Condition B.

AO2

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2 marks for an explanation of the results based on application of obedience research to the scenario.

Possible answer: the confederate's uniform (1), increased the legitimacy / authority / status of the demands or order given (1) or similar. Credit use of evidence as part of the explanation eg Bickman, Milgram.

(d) **[AO2 = 1, AO3 = 1]**

AO2

1 mark for plausible application of the issue to the study.

AO3

1 mark for knowledge / identification of a relevant ethical issue. Likely issues: (lack of) consent, opportunity to withdraw, deception, treating people with respect, protection from harm, confidentiality, debriefing.

Possible answer: An ethical issue in the study is lack of consent (1) because the researcher did not ask the participants if they wanted to be in the study (1).

Q27.

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 = 1]**

One mark for identification of laboratory experiment.

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

Up to 2 marks for an explanation of an advantage of a laboratory experiment.

Possible answer: As the research takes part in a controlled environment, the researcher can eliminate the possible effect of extraneous variables.

Answers are likely to focus on advantages based on increased control of variables / increased causality / replicability.

The advantage can be credited if it corresponds with the answer in 6.

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

Independent variable: whether the list of points was positive then negative or negative then positive / the order of the points / information. Answer must imply that there is more than one condition.

Dependent variable: whether (or not) they said Alex was 'friendly' / the number of participants who said Alex was 'friendly' / number of 'friendly' responses.

No credit for 'level of friendliness'.

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- Award both marks for correct IV and DV that are not labelled but are in the order of the quesiton.
- Award 1 mark for correct IV and DV that are not labelled and are not in the order of the question ie DV then IV.
- No credit for either IV or DV **alone** (if not labelled).

(d) **[AO3 = 1]**

One mark for identifying independent measures / groups / samples / unrelated design.

Q28.

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 = 2**

This is an example of misleading information because the word “youth” suggests the man was young.
1 mark for a brief or muddled answer eg identifying the use of the word “youth” or “it refers to age”.
2 marks for some accurate elaboration eg the answer clearly states that the man was young or a youth or suggests that his age may influence the answer.
Credit answers which state that the information is misleading because the question suggests there was a youth in the picture, when in fact there was only a man and a woman.

(b) **AO3 = 1 mark + 3**

1 mark for independent (groups, measures, participants or subjects or between subjects or participants) design or unrelated design. 0 marks for individual.
1 mark for matched (groups, measures, participants, subjects).
A repeated measures design could not be used because participants would take part in both conditions. This would be inappropriate because their answer to one question would affect their answer to the other question. Candidates may point out this would make it easy to work out the aim of the experiment and so could lead to demand characteristics.
1 mark for a very brief / muddled answer eg “they couldn’t answer both questions.” “It could lead to demand characteristics.”
Further marks for accurate detail. “It could lead to demand characteristics because they would know what the experiment was about.” 2 marks
“Participants couldn’t take part in both conditions because their answer to one question would affect their answer to the other question.” 3 marks

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(c) **AO3 = 4**

In this experiment it could be used to check how long the participant should be given to look at the picture so that the timing could be changed if it was too long or too short. It could check the participants understand the questions asked and what they are required to do. It could also be used to ask a few participants about their experience of taking part.

Credit any appropriate answer which could apply to this investigation. No marks are awarded for a definition of a pilot study. Explanations which do not relate to this investigation maximum 2 marks.

AO3 Application of knowledge of research methods
4 marks Accurate and reasonably detailed Accurate and reasonably detailed explanation that demonstrates sound understanding of why a pilot study would be appropriate in this study.
3 marks Less detailed but generally accurate Less detailed but generally accurate answer that demonstrates sound understanding of why a pilot study would be appropriate in this study.
2 marks Basic Basic answer that demonstrates some understanding of why a pilot study would be appropriate in this study, but lacks detail and may be muddled.
1 mark Very brief/flawed Very brief or flawed answer demonstrating very little understanding of why a pilot study would be appropriate in this study.
0 marks No creditworthy material.

(d) **AO3 = 4**

One strength of using photographs in the investigation would be control of variables eg the same pictures could be shown for the same amount of time. Candidates may refer to a limitation of the live conversation.
One limitation is lack of validity. The findings cannot be generalised to real life situations where other factors such as changing facial expressions and gestures could be relevant.
For each strength and limitation 1 mark for stating a strength / limitation. 2nd mark for accurate elaboration.

(e) **AO1 = 6**

Candidates must select a research study (studies) which relates to misleading information / leading questions, so research into weapon focus should not be credited.
Candidates are likely to refer to Loftus and Palmer's (1974) experiment where the verb in the critical question was changed (smashed, collided, bumped, hit or contacted.) Other relevant research would be Loftus and Palmer asking participants "Did you see any broken glass?" and Loftus et al's (1978) study using a red Datsun and Stop or Yield signs.
Research into anxiety and EWT is not relevant unless the candidate refers to misleading information such as Yuille and Cutshall where the witnesses to a real-life

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shooting appeared resistant to misleading information.
Research relating to age could also be relevant. Eg Warren et al (2005) found children were more likely to be influenced by misleading information than adults. Credit any relevant research.

Examiners are reminded that there is a depth / breadth trade-off.

AO1 Knowledge and understanding
6 marks Accurate and reasonably detailed Accurate and reasonably detailed answer that demonstrates sound knowledge and understanding of the procedures and findings of one or more relevant research studies.
5 – 4 marks Less detailed but generally accurate Less detailed but generally accurate answer that demonstrates relevant knowledge and understanding of the procedures and findings of one or more relevant research studies.
3 – 2 marks Basic Basic answer that demonstrates some relevant knowledge and understanding of the procedures and findings of one or more relevant research studies but lacks detail and may be muddled.
1 mark Very brief/flawed Very brief or flawed answer demonstrating very little knowledge of the procedures and findings of one or more relevant research studies.
0 marks No creditworthy material.

Q29.

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 = 4**

Up to four marks are awarded for discussing advantage(s) of using a laboratory experiment in this case.

The most likely advantages of the laboratory setting in this experiment include:

- Control over extraneous variables. The lab setting meant that extraneous variables could be minimised. In this experiment, outside factors such as waiting time, noise and stress (which would be difficult to control in a field experiment) were removed.

- Ethical issues. In this case, the testing of memory in a field experiment would have involved ethical issues including deception of patients or withholding of information.

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Candidates may also refer to other advantages of the laboratory setting such as replicability. These can receive full credit if they contextualised within the scenario.

Award four marks for an answer which provides accurate and detailed discussion of relevant advantage(s) with a clear link to the scenario.

Award two or three marks for an answer which includes discussion of relevant advantage(s), with some reference to the scenario.

Award one mark only for an answer which merely identifies one or more relevant advantage(s) of a laboratory experiment appropriate to this scenario.

Advantages of laboratory experiments which are not relevant to this study cannot gain any credit eg use of technical equipment.

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

- One mark for correctly identifying the Mann Whitney U test or independent t test.
- One mark awarded for an accurate reason for choice (for Mann Whitney these are: test of difference, independent groups design / independent data or data which can be treated at an ordinal level).

Q30.

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.

AO2 / AO3 = 10

Candidates are required to design an experiment to test the effects of different kinds of music on concentration. Examiners need to ensure that they read the completed answer thoroughly before starting to award marks.

Candidates are directed to three pieces of material which should be included within their proposed design. They are required to:

- Operationalise the independent and dependent variables
- Provide details of how they would control extraneous variables
- Describe the procedure they would use with sufficient detail for the study to be carried out.

Candidates are told that they **must** use a repeated measures design. If they do not, they can only access marks for the IV and DV.

In this experiment:

<u>IV and DV – 2 marks</u>

- The independent variable is type of music (for example classical and rock). Candidates should suggest two different types of music.

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- The dependent variable is a measurement of concentration. Candidates can use the suggested word search task but must state how it is to be measured (for example, time taken to complete a word search or number of errors made). Alternatively, candidates may suggest their own DV.

Award one mark for operationalising each variable.

Controls – 4 marks

An important element in a repeated measures design is the control of order effects.

- Counterbalancing is the most likely procedure to control order effects. Half of the participants should carry out the 1st concentration task with music 1 followed by the 2nd task with music 2. The other half should complete the concentration task with music 2 first and follow this with music 1.

- The two concentration tasks should be matched for difficulty.

- Alternatively candidates could argue for randomisation or a time delay between the tasks.

Other relevant controls eg volume of music, time allocated for task should be credited. Answers which make no reference to the control of order effects maximum 2 marks.

Procedure – 4 marks

Procedural information should provide detail of how to go about conducting the study (ie what participants are required to do). Candidates could approach this task at a macro level ie from getting consent to debriefing or at a micro level ie the specific procedure for one participant. Other creditworthy material could include:

- Dealing with ethical issues

- Sampling

- Details of conditions and allocation to them

- Standardised instructions

- Data collected.

Note: there are only 4 marks available for the procedure and therefore candidates do not need to address all of the above to gain full credit.

Q31.

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

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- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

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

For two marks, a clear, testable statement containing both conditions of the IV and an operationalised DV.

For one mark, a statement containing both conditions of the IV and a DV.

No marks for expressions of aim, questions, correlational hypotheses or statements without two conditions.

Possible answers:

Directional: Participants will successfully shoot more netballs through the hoop in the presence of an audience than in the absence of an audience.

Note: Also accept a directional hypothesis opposite to the above.

Non-directional: There will be a difference in the number of netballs successfully shot through the hoop for participants who perform in the presence of an audience and participants who perform in the absence of an audience.

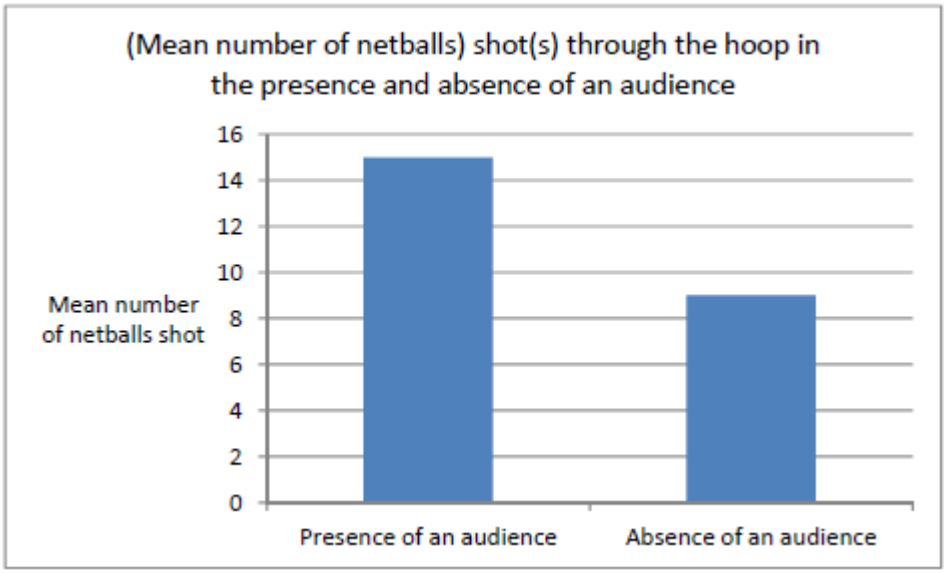
Credit null hypothesis.

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

One mark for an appropriate conclusion eg the presence of an audience has a positive effect on the performance of the task (or similar response) (AO3, 1).

One mark for the justification of the response eg the mean number of netballs successfully shot through the hoop is higher when there is an audience than when there is no audience (or similar response) (AO3, 1).

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



To gain the maximum three marks, candidates must provide the following:

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- An appropriate title for the graphical display
- Appropriate axes and labelled eg presence / absence of an audience
- Plotting of data using a sensible scale / no penalty for joined bars.

Line graphs can be credited for title and axes only.

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

One mark for a relevant strength.
One mark for how / why it is a strength.

Likely strengths: more likely to be representative of the target population; able to generalise to the target population; to exclude researcher bias etc.

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

One mark for a relevant limitation of an independent groups design.
One mark for how / why in relation to this study eg individual differences in ability / height etc.

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

Up to two marks for an appropriate explanation of how the problem may have been overcome.

Possible answer: Using a repeated measures design (1) plus explanation of how this could be done or why this would improve the study.

Credit answers that refer to matched pairs / need for random allocation.

Can credit (ii) in respect of incorrect answer to (i).

(f) (i) **[AO3 = 1]**

One mark for correct knowledge of the term.

Possible answer: A variable other than the independent variable or an additional / or another variable that might have an effect on the dependent variable, only accept the word ‘results’ for DV (1).

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

One mark for stating that if EVs are not controlled for, then the results may be confounded (1) the researcher does not know what is causing the effect (1) or other suitable expansion eg effect on reliability or validity.

Do not accept - results will not be accurate.

Credit answers that refer to the study by way of illustration.

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

Instruction must be written verbatim for more than 1 mark.

Essential - reference to presence of audience

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points	- reference to shooting (hoops) throwing (hoops)
Optional	- where to stand - ethics - introduction of self

4 marks	Both essential and at least one optional point addressed clearly such that completion of the task in the experimental condition would be easily possible. Information should be clear, relevant, sensible and logically structured. Must be verbatim.
3 marks	Both essential points are addressed such that completion of the task in the experimental condition would be relatively easy. There may be deficiencies in clarity, some irrelevance, illogical sequencing or inappropriate content. Must be verbatim.
2 marks	Any two points are addressed. There may be omissions / irrelevancies / muddle such that completion of the task would be very difficult. Must be verbatim.
1 marks	There must be at least one relevant point (optional or essential). Information may be unclear / inappropriate / irrelevant / muddled such that completion of the task would be very difficult.
0 marks	No relevant information. Completion of the task would not be possible.

NB 2 - 4 marks = Verbatim Instructions

Q32.

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) **[AO1 = 2]**

Up to 2 marks for description of both obsessions – recurrent / persistent thoughts / ideas / images / impulses and compulsions – repetitive behaviours / ritual acts / behaviour that reduces anxiety.
Accept physiological symptoms of anxiety.

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

1 mark for naming repeated measures design.
1 further mark for an elaboration of repeated measures design.
Possible answers:
Repeated measures design means that the same participants are used in both conditions of the study.
If the answer is related to the study described: This means that the children whose anxiety ratings are taken in the before therapy condition are the same children as those who provide the anxiety ratings for the after therapy

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condition.

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

Up to 2 marks for an explanation of one advantage of using repeated measures design.
The advantage of repeated measures design (in this study) is that there will be no participant variables (1) so any differences in performance (the median anxiety ratings before and after therapy) are more likely to be due to the manipulated variables / variables under test (therapy programme) than other variables so the validity of the results is increased.
Answers based on the idea that fewer participants are required than in other designs are relevant.

Note:
If the answer to (b) is incorrect **full credit** can be awarded for (c) if the advantage given matches the experimental design identified in the answer to (b).

Q33.

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]**

1 mark for naming repeated measures design.
1 further mark for an elaboration of repeated measures design.
Possible answers:
Repeated measures design means that the same participants are used in both conditions of the study.
If the answer is related to the study described: This means that the children whose language interaction ratings are taken in the before therapy condition are the same children as those who provide the language interaction ratings for the after therapy condition.

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

Up to 2 marks for a brief discussion of one advantage of using repeated measures design.
The advantage of repeated measures design (in this study) is that there will be no participant variables (1) so any differences in performance (the median verbal interaction ratings before and after therapy) are more likely to be due to the manipulated variables / variables under test (therapy programme) than other variables / so the validity of the results is increased (1).

Answers based on the idea that fewer participants are required than in other designs are relevant.

Note:
If the answer to (a) is incorrect **full credit** can be awarded for (b) if the advantage given matches the experimental design identified in the answer to (a).

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

Up to 2 marks for a brief explanation of what the results indicate.
As the median verbal interaction ratings have increased (since the therapy programme) (1) that would seem to indicate the programme was effective (1).
Accept other plausible explanations of the difference in the medians.

Q34.

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**

0 marks for a non-directional or correlational hypothesis.
The DV in this experiment is number of pictures correctly identified. Hypotheses where the DV is incorrect (eg number of participants who identified 10 pictures) = 0 marks.
1 mark if not fully operationalised, eg Participants who used the memory improvement strategy did better.
2 marks Participants who use a memory improvement strategy will correctly identify more pictures / objects than participants who do not use a memory improvement strategy.

(b) **AO3 = 1**

In an independent groups design a different group of participants is used in each condition.

1 mark = Different participants / people in each condition / group

Different / separate groups

Random allocation to groups / conditions.

0 marks = Different / separate conditions

Independent participants / people

Different experiments.

(c) **AO3 = 2 + 2**

Strength

The participants are naïve because they take part in only one condition, so are less likely to show demand characteristics. There are no order effects such as practice or fatigue because participants take part in one condition.

Limitation

Individual variation, because there are different participants in each condition. More participants are needed than if a repeated measures design was used.

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In each case 1 mark for very brief or slightly muddled strength or limitation, 2nd mark for appropriate elaboration of explanation.
0 marks for simply stating there are different participants in each condition.

(d) **AO3 = 3**

A pilot study is used to check aspects of the research such as whether participants understand standardised instructions, whether timings are adequate etc. It allows the researcher to try out the study with a few participants so that adjustments can be made before the main study, so saving time and money.

1 mark for a very brief explanation. Further marks for appropriate elaboration or identification of other reasons. Eg

To check it works. 1 mark
To check the standardised instructions are clear. 2 marks
To check the standardised instructions are clear enough for the participants to understand what they are required to do in the experiment. 3 marks

This question requires an explanation of why a pilot study was used, so a description of what a pilot study is (small scale study carried out before the main research) is not credit-worthy on its own. Candidates do not have to refer to a specific aspect of this experiment.

However, to gain full marks the answer must be relevant, so reference to checking sound levels for example would not be relevant.

(e) **AO3 = 2**

The standard deviation (spread of scores) is larger in the condition with the memory improvement strategy.

Candidates who use the word ‘range’ to suggest spread should be credited.

1 mark The standard deviation is larger in the condition with the memory improvement strategy.
2 marks The data shows the dispersion or spread of scores is larger in the condition with the memory improvement strategy.

Q35.

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 / AO3 = 2**

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They wanted to clarify some of the issues raised by previous research where some studies had shown that red facilitated tasks and other studies had shown the opposite. They believed that one way to reconcile these different findings was to look at particular cognitive tasks eg ones which required attention to detail and to compare them with tasks which tap into very different skills eg creativity and thus to narrow down the benefits of providing red backgrounds.

One mark for a brief answer eg ‘they wanted to investigate the effects of colour on performance.’ One further mark for elaboration, in relation to colour and / or performance.

(b) **AO1 = 2**

Candidates need to show understanding of reporting conventions. The introduction is an important part of the report that provides background information on theories and studies relevant to the investigation. One mark for a brief explanation of the purpose eg ‘It provides background information’, and one further mark for elaboration or for other detail such as reviewing methodological issues or how the current aims / hypothesis were derived.

(c) **AO1 = 1**

In this question, candidates are not required to relate validity to this particular study so a general definition of validity is acceptable. Definitions of specific types of validity (eg population validity) can also gain credit.
Validity refers to how well a test or a piece of research measures what it says it measures = 1 mark.
Answers such as ‘truth’ or ‘whether it is true’ ‘legitimacy’ or ‘accuracy’ = 0 marks.

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

The Canadian researchers who actually undertook this study suggested the following possible practical applications:

- to help decide what colour to pick for an educational facility
- to help decide what colour enhances persuasion in a consumption context
- to help decided what colour enhances creativity in a new product design process.

Any plausible practical applications are credit-worthy.
1 mark for identifying an application and 1 further mark for elaboration.
‘You could use particular colours for pages in textbooks’ = 1 mark.
‘Red might be used in textbooks covering analytical subjects like maths’ = 2 marks.

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

If the researchers had judged the toys themselves, they might have been biased in favour of their hypothesis. There are no objective criteria for what makes a toy either practical or original.
Independent judges would be able to decide between themselves on a set of criteria and then apply them to the toys made by the participants.

Some candidates might interpret ‘independent judges’ in this question to mean judges who do not confer with one another. In this case, an acceptable answer would be that they could not conform with one another when making their judgement.

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One mark for a brief explanation, eg to avoid experimenter bias, and one further mark for elaboration, eg if the researchers judged the toys themselves.
An answer explaining the value of rating the toys should be credited.

(f) **AO2 / AO3 = 5**

Candidates need to use the details in the description of the study to write an appropriate set of instructions for potential participants.

The instructions should be clear and succinct. They must:

- explain the procedures of this study relevant to participants
- include a check of understanding of instructions.

They should also use language appropriate for a formal document and be as straightforward and courteous as possible.

This is not a consent form so explicit references to ethical considerations are not necessary for full marks. However, it is perfectly acceptable to include comments such as ‘you are free to withdraw from the study at any time.’

AO3 Mark Bands
5 marks Effective The **standardised instructions** provide accurate detail of the procedure and go beyond the information given in the question eg provide details of time allowed.
4 – 3 marks Reasonable The **standardised instructions** provide sufficient detail of the procedure in a reasonably clear form.
2 marks Basic The standardised instructions provide some details of the procedure though these may not be clear.
1 mark Rudimentary The standardised instructions provide few details of the procedure and may be muddled and or inaccurate. Omissions in the instructions compromise the procedure.
0 marks No creditworthy material is presented.

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Q1.

(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

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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 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.

Q2.

(a) Despite 36% of students not having the mathematical skills to answer this question appropriately and 3% not even attempting it, those who did have the knowledge answered it well. Some missed or did not understand the requirement for three significant figures.

(b) Most answers provided an accurate statement of the likely outcome of the experiment and could provide some sort of explanation. However, many students missed the final mark by not providing accurate detail of the type of social influence being displayed, especially in condition 2. Weaker answers were largely common sense, lacking psychological terminology

(c) This was a demanding question as students had to explain how the researchers might have addressed this issue in sufficient detail for 4 marks. Many chose matched pairs as an appropriate method, but were vague about what participants might be matched on, how matching might be carried out, and how participants would then by distributed across conditions. There were, however, some very good answers covering all these aspects. A significant minority chose repeated measures as an appropriate method, but this was unlikely to be practical given the nature of the study. Such answers earned credit only if they showed awareness of the need, for example a very long interval between testing, the use of different but comparable questionnaires, etc.

(d) Despite the injunction a number of students still referred to the level of measurement as a reason for using chi-square. Otherwise this question was done well, with many answers covering the requirement for independent data and a test of difference (between conditions) or association (between variables). Answers referring to correlation did not receive credit.

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(e) The majority of students demonstrated understanding the relationship between calculated and critical values, and the link to the chosen significance level. A few were confused as to which was the calculated and which was the critical value.

Q3.

(a) This question was well answered with over 90% of students correctly identifying the type of experiment used in the study.

(b) Almost half of the students gained full credit for this question. Unfortunately, a few gave the independent variable instead of the dependent variable, or got confused with speed or the distance they had to run. Many students failed to state that the running time was measured in seconds.

(c) This question was generally poorly answered, with 57% of students failing to achieve any marks and 3% not attempting it. There was an occasional reference to *'"the need for continuous data"'*, but very few students gained the second mark. Overall, there was a lack of understanding about what a histogram is or when they should be used and schools/colleges need to address this. A common incorrect answer was to assume a histogram is used for a correlation.

(d) This question was reasonably well answered. Unfortunately, a number provided a full title instead of naming the type of graph, although when these included reference to a bar chart they received appropriate credit. A number of the axis labels were vague, omitting *"seconds"* or *"mean/average"*, or just writing *"conditions"*. There was also some confusion regarding the type of graph with *"scattergram"* being the most common incorrect response.

(e) Although there were some strong responses, generally students found this harder than anticipated. A number failed to receive any credit due to simply defining the mean and the standard deviation. It was also far too common for students not to understand and answer the 'justify' component of the question. Many students simply restated information from the table or provided possible explanations or conclusions, as opposed to justifications. Although students generally saw the mean as showing a difference, there was often the claim that music hindered performance, with confusion regarding time being a higher score, meaning slower. Worryingly, some students still have little understanding of standard deviation.

(f) Despite 36% of students not having the mathematical skills to answer this question appropriately and 3% not even attempting it, those who did have the knowledge answered it well. Some missed or did not understand the requirement for three significant figures.

(g) This question was generally answered very well, with the majority of students achieving all five marks. Impressively, nearly all students identified the points in mark scheme for choice of test and most could justify why the result was not significant, although a few picked the wrong critical value from the table.

(h) Many students could correctly define a Type II error, although there was some limited descriptions and some confusion between Type I and Type II errors. Few students managed a coherent response to the second part of question, requiring an explanation as to why the 5% level is normally used in research. Many were not clear about the balance between making Type I and Type II errors, suggesting that a 5% level prevented these errors from occurring. Weaker students did little beyond stating that it is used because of convention.

(i) From the stem of the question, a clearly uncontrolled variable was the type of music

participants listened to in condition B. Surprisingly few students identified this extraneous variable but there were a variety of environmental factors given that received credit, if they could have feasibly changed within one week and affected the running times. Unfortunately, over half of the students appeared not to have read the stem properly and therefore offered inappropriate extraneous variables, thus gaining zero marks. The most common inappropriate variables were participant variables, which would not have feasibly changed within the week, for example running ability, fitness level, age or gender, or issues regarding order effects, which would have been addressed by the design of the study.

(j) This question was generally quite poorly answered. Although many students could gain some credit by defining what peer review is, very few demonstrated a detailed understanding of theprocesses or the purposes of it, with the majority achieving level 2. Many students made no reference to publication and saw it as a simple checking method, often with the misconception that it involves the reviewer repeating the study. Stronger students gave the process and then proceeded to give its purpose, whereas weaker ones wrote all they knew, including pre-learned evaluative points that did not gain credit. Despite some impressive answers that showed detailed knowledge of both process and purpose, overall students had very limited or no practical understanding of what peer review involves and teachers are encouraged to address this.

Q4.

(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

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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.

Q18.

(a) There were some excellent answers referring to checking the procedure of the words / words and picture study and making changes if necessary. There appeared to be three main areas of misunderstanding; that a pilot study should be used to see if the hypothesis was supported, to see whether a different experimental design should be used or to check participants. In relation to the final point there seemed to be an incorrect assumption by some students that the same participants would be used in the pilot study as the experiment.

(b) Students were required to operationalise the IV and the DV in order to score full marks. "There will be a difference in the number of words correctly recalled when words are presented with pictures and without pictures" is operationalised. "There will be a difference in words recalled in condition one and condition two" is not operationalised and would therefore attract only one of the two marks available. Many answers referred to a correlation, using the term 'relationship' or 'link' when they meant a difference. A few students produced a null hypothesis in response to this question.

(c) The comparison of experimental designs proved difficult for some students. Students who considered the designs in relation to the stem material were more likely to produce an appropriate answer. Those who just repeated rote learnt problems of repeated measures designs were less successful. For example, in the context of this study, (learning 20 words / 20 words with pictures) fatigue was unlikely, given the minimal requirements of the tasks.

(d) Students were required to show some understanding of the outcome of the experiment. This could be achieved by reference to the median and range in such a way that it was apparent that the students understood the terms, eg referring to the average or spread of the scores. Students could also show understanding by drawing an inference from the figures. Simply repeating the contents of the table showed no understanding.

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Q19.

(a) This was generally answered well although a surprising number of students failed to include both elements of ‘order’ and ‘middle’ in their answers. Some students just presented the partial formula of n(+1) / 2 with no explanation of what this meant.

(b) Students failed to notice that the DV was an ‘estimation’ not the median score.

(c) Students are still poor at writing clear hypotheses with both conditions of the IV present and a measurable DV. Many answers were aims and the expression ‘more likely’ was often used.

(d) Students were still confused about the term ‘experimental design’, often thinking it referred to conducting a field or laboratory experiment. Others did not realise that in both the first and second parts of the investigation the researcher was looking for a difference between the performances of men and women meaning that on both occasions the experimental design was independent groups.

(e) Overall, there was a lack of clarity in some responses to this question. Unless students made it clear exactly how the researcher would end up with a sample of 15 men and 15 women from the factory, they could not gain full credit. References to random number generators / computers often did not describe how the names would become numbers.

(f) This was answered well with the majority of students gaining at least one mark.

(g) This was answered reasonably well with many students gaining at least 2 marks.

(h) Unfortunately, once again, students did not recognise that if asked about debriefing participants then the focus is on telling people everything about the study in which they have just taken part. Too many answers merely concentrated on ethical points or added information which would not normally be available at debriefing, such as, details of all the results. Also, some accounts stated that participants could withdraw from the study, even though they had finished participating.

(i) Students often limited themselves to one mark because they failed to develop the reason they proposed as an explanation for why researchers conduct pilot studies. In general, it is accepted that the purpose of a pilot study is to identify possible flaws so that they can be eliminated / to ensure the data collected is appropriate / to ensure time is not wasted.

Q20.

(a) The majority of students could correctly identify the IV, though some gave the DV.

(b) Few students gained both marks for this question. A large number of students were under the impression that all quasi-experiments are conducted in a natural setting, such that extraneous variables cannot be controlled. Many students recognised that quasi-experiments do not involve manipulation of the IV, but failed to apply this understanding to the context of the question, that OCD would be pre-existing or naturally occurring.

(c) Many of the variables that students suggested were appropriate, with most opting for age as a criterion for matching participants. A few students, incorrectly, wrote about whether they had OCD or not despite having mentioned this in part (a).

(d) Many students believed that matched pairs designs remove or eliminate participant variables rather than merely controlling them, and yet students were unable to link

this advantage to the stem of the question: that the researcher could be more confident that the results found were due to the existence of OCD, than other differences between participants.

Q21.

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.

Q22.

(a) This was generally answered well.

(b) Students failed to notice that the appropriate conclusion the researchers could draw was that the participants **believed / said** they would help. The actual behaviour was not measured by the questionnaire.

(c) Students are still poor at writing clear hypotheses, with both conditions of the IV present and a measurable DV. Many answers were aims and the expression ‘more likely’ was often used, as was reference to Condition 1 and Condition 2.

(d) It was evident from many answers that students could not spot obvious variables on which researchers would focus their attention. Instead, answers included reference to the ‘heating’, with the idea that the room was likely to become so hot / cold that participants would lose the ability to hear what was going on.

(e) Many students lost a mark for this question because they produced a generic explanation for the suitability of the experimental design and did not relate their answers to the study described.

(f) This was not answered well. Many explained what random sampling is or gave advantages or limitations of the method. It was rare to see an answer that identified what must go into the ‘hat / random-number generator’ and what would then happen. There was a great deal of confusion with random allocation.

(g) Most students suggested a bar chart and could produce a sensible reason for choosing such a display.

(h) Unfortunately, many students did not recognise that, if asked about debriefing participants, then the focus is on telling people everything about the study in which

they have just taken part. This is especially important in studies using independent groups design, as participants are not only unaware of the aim of the investigation, but also that other people performed under different conditions. Too many answers merely concentrated on ethical points.

Q23.

(a) Most students were able to state the independent variable, though some incorrectly emphasised the location in which words were 'learnt' rather than the location in which they were 'recalled'.

(b) Most students were able to state the likely outcome, that participants in Condition 1 would outperform those in Condition 2, and could link this effectively to the notion of context cueing recall. However, for full marks the 'retrieval failure', experienced in Condition 2, and the reason for it, had to be discussed. This final requirement eluded many students who focused on 'recall' rather than 'retrieval failure'.

(c) Answers to this question often lacked precision, for example, it was necessary to 'put the names of **all** the participants in a hat'. It was also necessary to describe how the selection for conditions 1 and 2 would be made, and this information was often vaguely expressed or absent.

(d) Most answers gave a reasonable basis for 'matching' such as 'IQ', but failed to deal with the issue of 'pairs' and how to allocate them to the different conditions.

Q24.

(a) Students who had carefully read the stem material noted the reference to the age of the participants in the study being estimated by the researcher. They were thus more likely to recognise that one aim was to investigate the effect of age on eyewitness testimony.

(b) Students usually responded by referring to the benefits in terms of validity or fewer demand characteristics. Not all students elaborated their point in order to achieve a second mark.

(c) This question was poorly answered because many students could not accurately identify opportunity sampling and they confused this technique with random sampling. It is important for students to grasp that random refers to where everyone in the sampling frame has an equal chance of being selected and this does not apply in opportunity sampling. The word random has a different meaning in psychology compared with everyday usage.

(d) This was generally answered well with many answers showing a good understanding of extraneous variables. Students were very inventive referring to the effect of both situational (weather, noise levels) and participant (in a rush, alcohol consumption, mental illness) variables.

Q25.

(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.

Q26.

(a) The majority of students were able to successfully identify 'independent measures' as the experimental design, although many confused 'design' with 'type of experiment', usually 'field', and failed to access any marks. 'Repeated measures' was also often stated though in these cases, students were at least able to access one mark if the advantage corresponded with the design they had given. Many students failed to make an appropriate link to the study described in their answer.

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However, some managed this by virtue of the fact that they went on to define ‘independent measures’ as ‘participants only take part in one condition’, thus the application in their answer was implied.

(b) This question was generally well answered with the Independent Variable (IV) and the Dependent Variable (DV) appropriately operationalized. Unfortunately, several students got these the wrong way round. Students should be reminded that it is best to state variables in an ‘operational’ form eg the DV could be given as ‘number of people who picked up litter’ but ‘obedience’ or ‘level of obedience’ would not gain credit.

(c) This question was generally very well answered with many students referring to the idea that a ‘uniform’ gives ‘legitimacy to the authority figure / the orders’, alongside an accurate likely outcome. However, some students did not state the likely outcome in terms of groups A or B in their answer. Other students offered only the outcome and so failed to access additional marks for ‘explanation’. Some simply cited relevant evidence (usually Milgram or Bickman) without developing these into a coherent argument.

(d) The vast majority of students gained both marks for this question. Of those that did not, ‘psychological harm’ proved to be a less suitable choice of issue as it was difficult to link to the information available in the stem. Some students correctly identified ‘(lack of) consent’ as an issue but then did little more than re-state the same phrase as part of their ‘link’ to the study / experiment described.

Q27.

(a) Most students correctly identified ‘laboratory experiment’.

(b) Many students gained a mark by outlining the increased ‘control’ that is offered by laboratory experiments. Some failed to expand or substantiate the advantage cited, by failing to acknowledge that this would lead to ‘more reliable cause and effect relationships’, for instance.

(c) This question was generally well answered with the Independent Variable (IV) and the Dependent Variable (DV) appropriately operationalized. Unfortunately, several students got these the wrong way round. Students should be reminded that it is best to state variables in an ‘operational’ form eg the DV could be given as ‘number of people who picked up litter’ but ‘obedience’ or ‘level of obedience’ would not gain credit.

(d) This question was almost always correctly answered.

Q28.

(a) Mostly appropriate answers were provided. Many answers referred to the term ‘youth’ misleading participants as it suggested the man in the photograph was young and this could influence the answer. Others said the reference to ‘youth’ was misleading because it suggested an extra person, a ‘youth’, was part of the photograph. Some answers suffered from poor expression resulting in a muddled answer.

(b) There were still a number of students who did not seem to understand the term ‘experimental design’ and who tried to answer by stating types of experiments such as laboratory or field. Even amongst students who understood the concept, there was some difficulty when it came to identifying the appropriate design. The explanation of why a repeated measures design was unsuitable was in some

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instances prefaced by unnecessary time wasting explanations of why an independent groups design would be a good idea.

(c) Although most students could explain the benefits of a pilot study, far fewer students gave an explanation in the context of this experiment, as required.

(d) There were some clear and effective answers to this question where students showed understanding and could apply this to the scenario. Some students however, failed to understand the question and perhaps would have benefited from re-reading the stem.

(e) Although there were some 'accurate and reasonably detailed answers' there were many more that were just 'generally accurate'. As in previous exam series, when asked to describe a research study, some students did not even know one study sufficiently well to access the top mark band. Some students had a little muddled knowledge of several (usually Loftus' studies) and produced answers where the research was so poorly described it was difficult to identify. There were, however, some good answers which accurately described one or more studies. Some students wasted time evaluating the research.

Q29.

(a) In this question, students were required to discuss the advantages of carrying out the experiment described in the stem, in a laboratory. Fewer than half of students made any reference to the stem and the most common mark awarded was one out of four. Those who referred to an advantage (eg control of extraneous variables) and linked it appropriately to the scenario (eg posters on the walls) were able to access the full range of marks. A small but significant minority insisted on writing about disadvantages and achieved no marks. Once again, schools and colleges should advise students to read stems carefully and apply knowledge in Section C.

(b) Most students achieved full marks, identifying the Mann-Whitney as the appropriate test and giving and ordinal data or independent groups as a reason. Some students provided two or three reasons going beyond the requirements of the question. There were a minority of cases where an incorrect answer was given, most commonly Spearman's rho or Wilcoxon's signed ranks test.

Q30.

As with previous high mark research method questions, this question had a range of answers from students that covered marks from 0-10. Some schools and colleges had clearly prepared their students very well and many showed an impressive understanding of experimental design and controls. However, other students struggled with the question and gained very few marks. Some of the most common errors were as follows:

- Ignoring the requirement to use repeated measures and converting the experiment to an independent groups design
- Failing to counterbalance order of presentation of the two types of music
- Producing two concentration tests which were not matched for difficulty
- Testing music v no music
- Focussing on trivial controls (breakfast, temperature) and ignoring important ones (volume of music).

Yet again, advice to teachers is: do some practical work and encourage your students to plan ‘thought experiments’. It was clear that some students were very familiar with designing experiments and they had a strong advantage on this question.

Q31.

(a) Students found this question very difficult. Many of the answers given were untestable statements because they did not contain two conditions and / or the DV was not operational. Answers were often in the following format – *There will be a better performance in the audience condition.*

(b) The majority of students were able to describe the pattern of the results but failed to use this as an explanation for the conclusion that could be drawn – the presence of an audience affected / increased the number of accurate shots through the hoop.

(c) Titles for the graph were generally good. The y axis sometimes did not contain reference to ‘mean’ number of successful shots. Plotting was accurate. Many students were able to present clear and accurate graphical displays.

(d) Students needed to be very clear about the strength and then explain why that was a strength of random sampling. Many students merely wrote a definition of random sampling.

(e) (i) Although students were able to identify a limitation of using independent groups – such as there are participant variables, rather than explaining why this is a limitation, they then went on to describe what is meant by participant variables.

(ii) Answers to this question often lacked information about overcoming the limitation.
Students could suggest that using matched pairs or repeated measures might be appropriate, but could not expand on what a researcher would actually do.

(f) (i) This was not well answered. There were many very vague definitions of extraneous variables such as, something that cannot be controlled / something that has to be controlled.

(ii) This was quite well answered although only a few students referred to ’confounding’ in their answer.

(g) This question required students to imagine themselves as the researcher about to read out to participants in the ‘audience’ condition the instructions for participation. Some students produced very clear information in verbatim form. There were some students who focussed only on ethical issues.

Q32.

(a) Two symptoms of obsessive-compulsive disorder were accurately described by many – typically, and predictably, the ‘obsessions’ and the ‘compulsions’; though physiological symptoms of anxiety were also deemed creditworthy. Some students gave symptoms that did not adequately distinguish OCD from other disorders, such as ‘irrational thinking’.

(b) Many students could identify the correct experimental design used in the study but fewer could provide an appropriate outline. A considerable number, however, thought the design was ‘independent groups’ or even ‘matched pairs’. Finally, ‘quasi-experiment’ was an often seen answer.

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(c) The advantage of ‘repeated measures’ was often stated rather than explained, for instance, ‘no participant variables’ was frequently offered without elaboration. Better, fuller answers tended to be those based on the time and cost-saving benefits of using the same participants twice in comparison to alternative designs. It was possible to gain two marks if the answer in part (c) could be matched to that in part (b), therefore, many students scored full marks in this question for an advantage of independent groups having named it above.

Q33.

The same issues on the *Anxiety Disorders* section were also relevant here. Many gave the wrong design for part (a) or the correct design without the outline. ‘No participant variables’ was often quoted for part (b) without elaboration. Part (c) posed few problems; the therapy was judged to be ‘effective’ by most and justified with reference to the data in the table.

Q34.

(a) Many candidates produced an operationalised directional hypothesis. Sometimes the dependent variable in the hypothesis was not operationalised, resulting in less than full marks.

(b) Most responses were appropriate with candidates showing a good understanding of independent groups design.

(c) Strength: many responses focused appropriately on the absence of different types of order effects or the limitation of demand characteristics relative to a repeated measures design. Answers which elaborated a relevant strength gained full marks.

Limitation: Good answers often referred to examples of individual differences between the groups affecting reliability. Appropriate elaboration was often evident.

Lack of clarity of expression sometimes obscured the point being made.

(d) A substantial number of candidates were able to explain the purpose of a pilot study, usually focusing on usefulness for checking and amending aspects of the procedure before the main study. The opportunity to observe and address unexpected ethical issues was also a creditworthy point. Candidates were particularly successful when they used an example to illustrate their answer for example to check the clarity of the pictures. Answers which merely outlined what a pilot study is were not credited.

(e) Responses to this question divided clearly between those who understood and could apply the concept of standard deviation and those who did not understand the concept and hence could not interpret the numbers in the table. A common wrong answer was to claim that the memory improvement group did ‘better’, presumably because 2.8 is higher than 0.29.

Q35.

(a) This question was answered well. Most candidates provided a detailed aim that was awarded 2 marks. A minority of candidates provided a more general aim that was credited with just 1 mark, such as “to investigate the effect of colour on performance in cognitive tasks”. For both marks some elaboration (either related to colour or performance) was required.

(b) This question was problematic for a lot of candidates. Many candidates confused the introduction with the abstract or the method sections and received no credit.

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Some recognised the inclusion of aims / hypotheses in the introduction but did not achieve 2 marks because they did not make reference to background information. A few impressive answers showed real understanding and referred to “contextualising the research”.

(c) Although this question was worth only 1 mark, many candidates produced lengthy answers.
Some distinguished between specific types of validity such as external validity or population validity. A small number of candidates became confused between validity and reliability and provided a definition of the test-re-test method. Just over half of candidates gained the mark.

(d) There were some lovely, imaginative responses to this question which was answered well in general. The majority of candidates achieved 2 marks by including an example of how colour could be used in a real world setting. The most popular answer was use of colour in classroom walls or on textbook pages to aid learning in particular subjects.

(e) The majority of answers to this question demonstrated an understanding that independent judges were required to reduce bias, and in doing so the majority achieved two marks.

(f) Few students achieved full marks on this question, providing little additional information to that included in the question stem. Candidates were too focused on providing details of ethics (which was not required), at the expense of standardised instructions. Some candidates also made an error in their instructions by stating that participants would be given 40 shapes, 20 red and 20 blue, when in fact participants would only be given one colour of 20 shapes. A further common error was writing that participants would be given a limited time to make the toy. Writing a limited time is not a clear standardised instruction and stronger candidates wrote exactly what the time limit would be. Very few candidates checked if participants had any questions at the end of the instructions. Candidates who had conducted research were at an advantage here and produced answers of a higher quality.

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Q1.

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 = 1**

Independent groups. Accept “independent” but not “individual”. Unrelated and between groups / subjects are also credit-worthy.

(b) **AO3 = 2**

There may be differences between the groups as there are different participants in each condition.
More participants are required than for a repeated measures design.
1 mark for very brief or muddled answer eg individual differences or needs more participants.
2 marks as above.

(c) **AO3 = 2**

The graph shows the cognitive interview is effective. There were more correct statements made after the cognitive interview than after the traditional interview.
There was no difference in the number of incorrect statements made.
1 mark for a very brief or muddled statement. Eg It shows it’s effective.
2 marks for some elaboration with reference to either correct statements, incorrect statements or both.

(d) **AO2 = 2**

The answer should clearly relate to one or more of the main techniques used in a cognitive interview:

Context reinstatement
Recall from a changed perspective
Recall in reverse order
Report everything.
The main additional features of the enhanced cognitive interview:
Encourage to relax and speak slowly
Offer comments to help clarify their statements
Adapt questions to suit the understanding of individual witnesses.

1 mark for simple identification of a relevant cognitive technique, or a very brief suggestion eg “tell me everything you saw.”
Further mark for application or elaboration. Eg “Please tell me everything you can remember about the robbery from the film you have just seen”, or “Report all the details you can remember even if they don’t seem very relevant.” 2 marks.
Answers which could not relate to the film or robbery should be restricted to a maximum of 1 mark.

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(e) **AO3 = 4**

Investigator effects occur when the researcher's behaviour or characteristics influence the research in some way. This includes the way the presence of the researcher may influence the participants.
0 marks for an incorrect answer or one which simply re-states the words eg "how the investigator effects research".
1 mark very brief or muddled answer eg the researcher's influence.
Maximum 2 marks for an accurate understanding of investigator effects but no reference to this experiment.
Candidates whose explanation of possible investigator effects in this experiment shows understanding of the term can be awarded 4 marks, even though there is no separate definition.
Eg The psychologist may expect the cognitive interview to be more effective than the standard interview. This may be unconsciously communicated to the participants though mannerisms such as smiling or frowning. (4 marks). There are different routes to 4 marks.
Candidates could be stronger on definitions or stronger on application.

Q2.

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**

0 marks for a directional hypothesis.
1 mark if not operationalised, eg "Age affects memory." "There will be a difference between the two conditions."
2 marks for eg "There will be a difference in how many numbers are correctly recalled by children and adults." "Children and adults have different short-term memory spans." Or "The capacity of short-term memory is different for adults and children.

Candidates may write a hypothesis where the IV is how many numbers are in the list and the DV is the number of participants who can recall that digit span.
Eg As numbers in the list increase, recall changes. 1 mark.
As the number of random numbers in the list increases, the number of participants recalling the list correctly, changes. 2 marks.

(b) **AO3 = 2**

The experiment uses adults in one condition and children in the other so it would be impossible to use a repeated design unless the researchers waited for the children to grow into adults.
Given the nature of this experiment, demand characteristics and order effects are inappropriate.
1 mark for a brief explanation. A further mark for elaboration. Eg Can compare the two different groups to see who is better. 0 marks (because this relates to all experimental designs).
They needed to have different people in each condition. 1 mark.
They needed to have different people in each condition based on age. 2 marks.
They needed to have children in one group and adults in the other. 2 marks.

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(c) **AO3 = 2**

Children 6
Adults 7
1 mark for each correct answer.

(d) **AO3 = 3**

The frequency distribution shows that there is a difference in results between the two age groups.
Adults recalled more digits than children. However, the difference is small and some children recalled more digits than some adults. Candidates might refer to the modal scores being different while the range is the same.
Any credit-worthy material should be credited.
1 mark for a very brief answer eg identifying there is a difference between adults and children and / or adults score more than children. Further marks for more detail as above.

(e) **AO2 = 2**

Other research has suggested the capacity of short-term memory is 7 + / – 2. The results do support this as the range is from 5-9.
1 mark for a brief or muddled explanation eg capacity is 5-9 / other research has similar findings.
2nd mark for elaboration as above.
Candidates will be credited for reference to research such as Jacobs which found STM increases with age. However, reference to such research is not a requirement.

Q3.

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**

Identification of the mean or median.
There are no repeated scores in either list, so the mode would not be appropriate.
Justification for the mean could be that it used all of the available data, that it is a powerful / sensitive measure or that it is suitable for use with interval / ratio data.
Justification for using the median is that it is relatively unaffected by outlying scores.

(b) **AO3 = 2**

The specification names random, opportunity and volunteer sampling. Answers must relate to volunteer sampling which involves participants selecting themselves.

1 mark:
very brief suggestion, eg put up a notice.
2 marks:
some elaboration that could apply to the scenario, eg advertise on the staff room notice board, asking teachers to sign a list.

(c) **AO3 = 1**

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Extraneous variables are anything other than the independent variable that could affect the dependent variable. In this study they could include participant differences, environmental variables such as temperature or noise, and experimenter variables including the way in which the research is conducted.

(d) **AO3 = 2**

The control must relate to the variable in (c).
1 mark for a brief suggestion. Second mark for some elaboration.
For example, control for participant differences by making sure both groups are similar (1 mark).
Control for participant differences by randomly assigning the participants to conditions (2 marks).

Q4.

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**

The independent variable is the type of memory strategy or whether the participants were instructed to form a mental image to link the words, or to memorise the words.
One mark for the “memory technique” or “instructions to participants or memory strategy.”
Two marks where the IV is operationalised as above.

(b) **AO3 = 2**

The dependent variable is number of words correctly recalled.
One mark for “recall” or a slightly muddled statement.
Two marks where the DV is operationalised as above.

(c) **AO3 = 1**

One mark for correct identification of an independent groups design.
Accept independent design / between-participant design.

(d) **AO3 = 2**

One mark for stating a strength, eg the same word list can be used for both conditions.
A further mark for explaining why this is a strength, eg the words for each group will be equally easy to learn. Credit any acceptable strength.

(e) **AO3 = 2**

One mark for identifying a suitable way of checking reliability, eg do it again. A further mark for elaboration, eg carry out the experiment again and look for a similarity in both sets of results.

Q1.

(a) Most candidates accurately reported independent groups / measures, unrelated or between subjects / groups design. Candidates seemed better prepared to identify the experimental design than in previous examination series, although there were some who incorrectly identified the type of experiment (eg laboratory experiment).

(b) If candidates got (a) wrong (laboratory experiment) then their limitation was usually wrong, so there were some incorrect references to low ecological validity. When candidates selected a correct limitation eg participant variables they did not always elaborate it well enough for two marks. Examples of individual differences were most plausible when they focussed on an appropriate characteristic for this study eg memory differences.

(c) Candidates who looked at the results on the graph and commented appropriately on the pattern of correct and incorrect statements, scored full marks. It is advisable for candidates to read the labels on the axes of a graph. A number of candidates failed to do this and so reported inaccurately on the average number of *participants* who had made statements.

(d) Answers generally showed good understanding of the cognitive interview approach. Candidates who just named a process, eg *report everything*, did not score full marks. Some elaboration or application to the stem was necessary to obtain a second mark.

(e) Responses to the term *investigator effects* were varied. A few candidates wrote excellent responses identifying cues the investigator might produce in the context of the study, which might lead to the investigator's expectations being fulfilled. Quite a number of candidates inappropriately discussed leading questions and often cited Loftus's work.

Q2.

(a) It was disappointing to see such poor understanding of how to write a non-directional hypothesis for an experiment. Common pitfalls were to write a directional hypothesis, a null hypothesis or a correlational hypothesis. Some candidates did not appear to understand the conventions of hypothesis writing at all and simply wrote a statement such as: 'They wanted to test memory span' or 'The capacity of STM is 7+ or – 2'.

(b) Some candidates clearly understood why the researchers had chosen an independent groups design and were able to offer a full answer worth 2 marks. However, this question was not answered well by many candidates. Candidates needed to apply their knowledge to answer this question but, unfortunately, many candidates simply gave a rote–learned advantage of an independent design without thinking about the context of this particular experiment where the problem of order effects or demand characteristics did not apply.

(c) Another straightforward question generally answered correctly.

(d) There were some full-mark answers where candidates demonstrated good understanding and were able to comment on several aspects of the graph. However, many candidates were only able to make a single point ie that adults generally had better recall than children and then 'padded out' their answer with repetition of the

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same point. A common pitfall was for candidates to state that 6 was the maximum number of digits recalled by children (or 7 by adults) instead of realising that this was the modal score. This was surprising as they had often successfully identified the modes in (c). Few candidates seemed to understand how to measure the range by looking at the information on the graph. It appears that candidates could benefit from more practical experience of interpreting graphs

(e) Most candidates answered this well and were able to refer to earlier research by Miller or Jacobs which had demonstrated the limited capacity of STM (ie 7+/– 2 items or a range between 5 and 9 items). A minority confused capacity with duration and tried to answer in terms of the Peterson and Peterson study.

Q3.

(a) Some candidates failed to recognise the term ‘central tendency’. Others identified a correct measure but struggled to identify why the measure they had chosen should be used. A number of candidates explained how to calculate the measure or simply defined it, which could not receive credit. Candidates who had been well prepared for this question gave clear and concise answers such as “The median, because it is unaffected by outliers.”

(b) Sampling method was generally well understood and many candidates were able to apply the method to teachers in the school. Candidates who had not read the stimulus material carefully enough suggested ways to obtain a volunteer sample which would not have been appropriate for this specific example. Others confused volunteer with opportunity or random sampling.

(c)(d) A number of candidates had not read the study closely enough and selected possible extraneous variables to do with the word lists. Good answers often cited individual differences or environmental variables in question (c) and were then able to explain how to control this in question (d), eg matched pairs or keeping noise, temperature constant / controlled.

Q4.

There appeared to be a centre effect on this question. Some candidates were very well prepared and achieved high marks. However, there was a significant minority who achieved very few marks on the whole question. It was particularly surprising that part (c) presented such difficulty. A common mistake was to think that the design was a ‘laboratory study’, but there was a range of odd suggestions, eg ‘random sample’, ‘controlled groups’, ‘peg-word method’, etc. Candidates who did answer part (c) correctly usually gave a good answer to part (d), showing that they had genuine understanding of the design and its strengths. Perhaps, surprisingly, most candidates, even those who had not been able to answer the other parts of this question, did seem to have some understanding of the idea of replication in order to test reliability for part (e).

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