AQA A LEVEL PSYCHOLOGY

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DESIGN A STUDY SOLUTIONS

Research Methods



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EXPERIMENT: EXERCISE AND HAPPINESS

Design an experiment to investigate whether exercise could increase feelings of happiness. For your measure of happiness, you should devise a measure that would provide data suitable for testing at an ordinal level of measurement.

In your answer, you should provide details of:

- Design – include reference to experimental design, variables and controls
- Materials/Apparatus – describe any special materials required
- Data analysis that could be used – include reference to both descriptive and inferential analysis

Justify your choices.

[12 marks]

Design – Experimental design

For this experiment, an independent groups design will be used. An independent groups design will be appropriate in order to reduce order effects, in particular practice effects which could lead to demand characteristics, where the participants work out the aim of experiment: the effect of exercise on happiness.

The experimental design has been outlined and justified appropriately.

Design – Variables

The independent variable is exercise (30 minutes exercise vs. no exercise) and the dependent variable is the change in happiness, measured via a questionnaire which will require participants to rate their happiness on a scale of 1-10 (with 1 being very unhappy and 10 being very happy) at the start and end of their condition. A change in happiness score will be calculated (ranging from -9 to +9), providing ordinal data.

The IV and DV have been clearly stated and justified.

Design – Controls

In order to control individual differences (e.g. existing levels of happiness) all participants will complete the questionnaire at the start and end of their condition. In condition one, participants will complete the questionnaire and be asked to wait in a waiting room for 30 minutes before completing it again. In condition two, participants will complete the questionnaire and then be asked to engage in 30 minutes of light exercise on a treadmill (walking or a slow jog), before completing the questionnaire again. All participants will complete the questionnaire in the waiting room to ensure that the room has no effect on their scores. To ensure time of day has no effect on scores, all participants will take part in the experiment in the morning (9 am to11 am).

Three different aspects of control have been presented and outlined clearly in relation to this experiment.

Materials/Apparatus

A questionnaire assessing happiness will be created, containing questions to obtain demographic information (age, gender, occupation, etc.) and the key question: how you would rate your current level of happiness on a scale of 1-10, with 1=very unhappy

An appropriate questionnaire has

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and 10=very happy. A treadmill (in the PE department) will also be used in which the participants in condition two will be encouraged to set a brisk walking pace or slow jog. A waiting area (next to the PE department) will be used for participants in condition one and for all participants to complete their questionnaire at the start and end of their condition.

been created to generate the required ordinal data. Other apparatus has also been outlined.

Data analysis

The data gathered will include a score for each of the participants ranging from -9 to +9 to indicate their change in happiness. For example:

	Condition 1 (No exercise) – Change in happiness score		Condition 2 (Exercise) – Change in happiness score
1	0	**11**	4
2	0	**12**	5
3	-1	**13**	3
4	1	**14**	6
5	2	**15**	5
6	-2	**16**	0
7	1	**17**	0
8	0	**18**	5
9	1	**19**	6
10	-1	**20**	3

While a table isn't necessary, it demonstrates clear understanding of how the data will be gathered and informs the analysis below.

Descriptive statistics could include the median (the middle value in each condition) and range (calculated by subtracting the lowest value from the highest).

In terms of inferential analysis, a Mann Whitney U test will be appropriate as this is a test of difference between conditions, the data is at least an ordinal level of measurement and an independent groups design is used.

While the answer has stated the median and range (which are correct), these could have been justified in light of the level of measurement. The inferential tests have been appropriately selected.

[Approx. 500 Words]

Examiner style comments: *Mark Band 4*

All the elements of the experiment has been presented and the suggestions are very well detailed, practical and appropriate for this experiment. The answer demonstrates clear knowledge and understanding of experimental design and data analysis and there is sufficient material for the study to be implemented.

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EXPERIMENT: EXERCISE AND HAPPINESS

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In your answer, you should provide details of:

- Design – include reference to experimental design, variables and controls
- Materials/Apparatus – describe any special materials required
- Data analysis that could be used – include reference to both descriptive and inferential analysis

Justify your choices.

[12 marks]

EXPERIMENT: MUSIC AND TASK PERFORMANCE

Design an experiment using a repeated measures design that can be carried out in a classroom. The aim is to investigate whether listening to music affects task performance (e.g. while completing a word search or a spot the differences puzzle).

In your answer, you should provide details of:

- The operationalised IV, DV and controls
- The sample and the sampling technique
- The procedure that could be used – there should be enough detail for the study to be carried out

[12 marks]

EXPERIMENT: WRITTEN AND SPOKEN INFORMATION

Design an experiment to test whether people who are given written information remember more than people who hear information in a spoken form.

You must refer to/provide details of:

- Design – include reference to experimental design, variables and controls
- The sample and sampling technique
- Materials/Apparatus – describe any special materials required
- An outline of the proposed procedure

[12 marks]

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QUASI-EXPERIMENT: MUSICAL ABILITY

Design a quasi-experiment to investigate whether there is a difference in the musical ability of left-handed students and right-handed students in a sixth form college.

You must provide details of:

- The experimental design
- An appropriate sampling method and justification
- The procedure that could be used, including details of how musical ability would be assessed
- A suitable debrief for the participants

[12 marks]

QUASI-EXPERIMENT: GENDER DIFFERENCES AND ATTENTION

Imagine that you have been asked to design a quasi-experiment to investigate whether there are gender differences in focussed attention. You decide to ask participants to find a specific letter (e.g. 'b') in an array of different letters, as in this example, where the task is to find the 'b' in an array of 'd's.

d	d	d	d	d	d	d	d	d	d	d	d	d	d
d	d	d	d	d	d	d	d	d	d	d	d	d	d
d	d	d	d	d	d	d	d	d	d	d	d	d	d
d	d	d	d	d	d	d	d	d	d	d	d	d	d
d	d	d	d	d	d	d	b	d	d	d	d	d	d
d	d	d	d	d	d	d	d	d	d	d	d	d	d
d	d	d	d	d	d	d	d	d	d	d	d	d	d
d	d	d	d	d	d	d	d	d	d	d	d	d	d

You decide to time the participants as they complete this task using a stop watch. Discuss the following aspects of this investigation:

- With reference to the letter finding task, how you would ensure that the task is the same for all of the participants
- One methodological issue that needs to be taken into account when you obtain suitable participants for this study and explain how you would deal with this issue
- What you would do to ensure that your participants are treated ethically
- How you would use inferential statistics to analyse the results of this investigation

[12 marks]

OBSERVATION: MOBILE PHONE USE IN PUBLIC

Design a naturalistic observation study to investigate mobile phone use in a public place.

In your answer, you should provide details of:

- Where and when you will conduct the observation and how you will sample behaviour
- Which behavioural categories you will use and how you will record the data
- Graphical representation of the data
- How you will deal with ethical issues

[12 marks]

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