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 the experiment: the effect of exercise on happiness.

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.

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 to 11 am).

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 and

The experimental design has been outlined and justified appropriately.
The IV and DV have been clearly stated and justified.
Three different aspects of control have been presented and outlined clearly in relation to this experiment.

An appropriate questionnaire has
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.

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:

<table>
<thead>
<tr>
<th>Condition 1 (No exercise) – Change in happiness score</th>
<th>Condition 2 (Exercise) – Change in happiness score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
</tr>
</tbody>
</table>

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 differences between conditions, the data is at least an ordinal level of measurement and an independent groups design is used.

[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.
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

Please note: This answer has been written in the first person as that question states: ‘how you will...’ and therefore first person is highly appropriate for this question.

Where and when you will conduct the observation and how you will sample behaviour
This will be a covert, non-participant observation. The observations will be carried out at Euston Station between the hours of 8 am and 10 am on a Monday. I will sit on a bench and observe the mobile phone use of people who pass directly in front of me. Event sampling will be used where all instances of mobile phone behaviour are recorded (see below).

Which behavioural categories you will use and how you will record the data
The behavioural categories I will use include: making a phone call; interacting with the phone but not making a call (e.g. text, using social media, etc.); and holding phone without interaction. I will collect this data using a tally sheet, as shown below. The total number of each behaviour could then be tallied and used to produce a graph.

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Tally</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making call</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interacting with phone but not making call</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holding phone but no interaction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graphical representation of the data
As this is nominal data (counting the number of instances of each behaviour using three categories) an appropriate graph is a bar chart as shown below:
Ethical issues to be considered
As the study is a covert observation in a busy station it will not be possible to gain informed consent from the participants and offer them the right to withdraw before taking part in the study. However, as the observation is taking place in a public place it does comply with ethical guidelines if privacy is not invaded, for example, listening into phone calls. While it would be too difficult to offer a debrief to all the participants, I will put up posters in the station following the observation explaining what the research entails and including my e-mail address so that people can contact me if they would like further information.

[Approx. 350 Words]

Examiner's comments

Mark Band 4

All the elements of the observation have been presented and the suggestions are very well detailed, practical and appropriate for this observation study. The answer demonstrates clear knowledge and understanding of these key features of an observation study and there is sufficient material for the study to be implemented.