**Statistical concepts**

In the two (imaginary) experiments summarized below, identify the independent variable, dependent variable, experimental group and control group (if they exist).

1. An athletics coach sometimes plays recorded crowd noise at training sessions, at other times conducting training under ordinary conditions. Half-way through each session, sprinters' running times are measured.

In this experiment, what are the dependent and independent variables?

The independent variable in this study is the presence or otherwise of the noise stimulus. The dependent or response variable is the running speed.

If you are going to create a control and experimental group as part of the procedure in this experiment to better assess the effects of the stimulus, how would you implement it?

The control group should not be exposed to any stimulus. So in this case, one group of athletes won't be exposed to the recorded noise. Those exposed to the crowd noise will be the experimental group. The running times of each group can be compared to see if there are significantly different speeds.

1. A rugby club habitually watches excerpts from recordings of matches before playing their own home games. A research wants to see if witnessing excerpts involving violent incidents will lead to emulation of such offences on the field. The players were split into three teams, each watching recordings in different rooms. One group observed a red card offence perpetrated by an international player, another group saw an excerpt with a very similar incident involving a player at club level, and the last group just watched an excerpt involving no serious offences.

After this exposure, and an aggressive pep talk using the same words in each instance, the players were observed in the subsequent rugby match. Those who had watched foul play by international players were more likely to commit offences themselves. The incidents were fewer and of a less blatant quality among those who had seen a club player offending. Those who had not observed serious offences were even less likely to offend.

In this experiment, which are the independent and dependent variables?

The independent variable is the team's exposure to illegal behavior. The dependent variable is the quality of their play at matches after being exposed to the conditions.

Which groups are the control and experimental group?

The control group is the third one, where no serious offending was shown to the players. The two remaining groups are the experimental groups.

**Data types**

 For each variable, identify the data type: continuous, ordinal or categorical).

Sex / Marital status / Level of education / Age group / Level of aggression / Speed / Distance

* Sex - categorical
* Marital status – categorical
* Level of education - ordinal
* Age group – ordinal (for analytical purposes, you would normally convert to integers, e.g. 0 - 9 years becomes 1, 10 – 19 years becomes 2, and so on)
* Level of aggression - ordinal
* Speed - continuous
* Distance - continuous