**Counfounding factors workshop**

**Activity 1**

In the “Experiments and Data” lecture, we started discussing this problem, and we are going to revisit it here:

**There are 8 deliberate errors (confounding factors) in this experimental design. How many can you spot?**

“A group of 4 students (A, B, C & D) wants to test whether closing your eyes help people remember better than if they have their eyes open.

They decide to test memory with 2 lists of 20 words which are randomly generated from an online dictionary. List 1 is used for eyes-open conditions. List 2 is used for eyes-closed conditions.

The experimenters agree that A and B will test the eyes-open condition, while C and D will test the eyes-closed condition. The labs are only available on a Tuesday morning, or a Thursday afternoon, so they decide that they will start with the eyes-open condition. That way A / B can tell C / D if they need to tweak their instructions for the key experimental condition (eyes-closed) on Thursday if this is necessary.

They post the following recruitment advert:

“We are looking for volunteers to test our hypothesis that closing your eyes can help you remember. If you would like to take part, please sign up for either the eyes-closed condition on Tuesday morning, or the eyes-open condition on Thursday afternoon.”

Each pair then work together to design their materials and instructions, and they agree to meet in a week to share their results.

**Bonus points: can you spot any hidden potential extra confounding factors that *might* influence the results that are not explicitly mentioned here.**

As a group, can you find the 8 deliberate errors? We covered 4 in class, but can you find the rest? And can you find any potential bonus issues?

**Activity 2**

Work on the design of your planned project to ensure that your study does not contain any potential confounding factors like the example above. In particular, think about the issues involved in running a project as a group.

The workshop leader will give you more directions.

**Activity 3**

Think about the data your study will generate and how you will score it.

*For experimental (or quasi-experimental) studies:*

Is there a risk that your study could generate floor or ceiling effects in your dependent variable? If so, what could you do about this in advance? Have you thought of running a pilot study to test the suitability of your materials and instructions?

Also, is there a risk that your study could generate very noisy data? (i.e. a measure that is not very reliable, and so not valid). What could you do to make your measure less noisy?

*For correlational studies:*

To find a reliable correlation, you need to observe variability in each measure, with the scores (roughly) showing a normal distribution (a “bell curve”) around the mean for each measure. If you have any of the following in either of your measures, then you will not get an accurate correlation:

1. A gap in your scores (such as only high and low scores, with none in the middle),
2. All the scores bunched together (such as all at one end of the scale)
3. An extreme value (that is different to all the rest)

How will you know that your data will be appropriate and that none of these 3 problems will occur?

Clues:

1. If you are using standardised scales, these problems should not occur.
2. If you are designing your own scale, you might want to run a pilot study.