



# Lecture02

Asking good questions and gathering reliable evidence

Dr Gordon Wright

10 October, 2022

# Key topics today

- The week ahead
- Some Induction Week Poll insights [in the lecture]
- The research process you are beginning
- A couple of CHIP topics to vote on
- Lab preview - The process, time-management and teamwork

# The week ahead

This week (week 2) you have your Social Psychology Essay Tutorial

“Sexual Economics: Theory and Patriarchy”

*“Is sex a female commodity that women exchange for men’s resources?  
Advantages and disadvantages of applying social exchange theory to  
understanding heterosexual relationships.”*

Deadline 10am Friday 21st October (end of week 3)

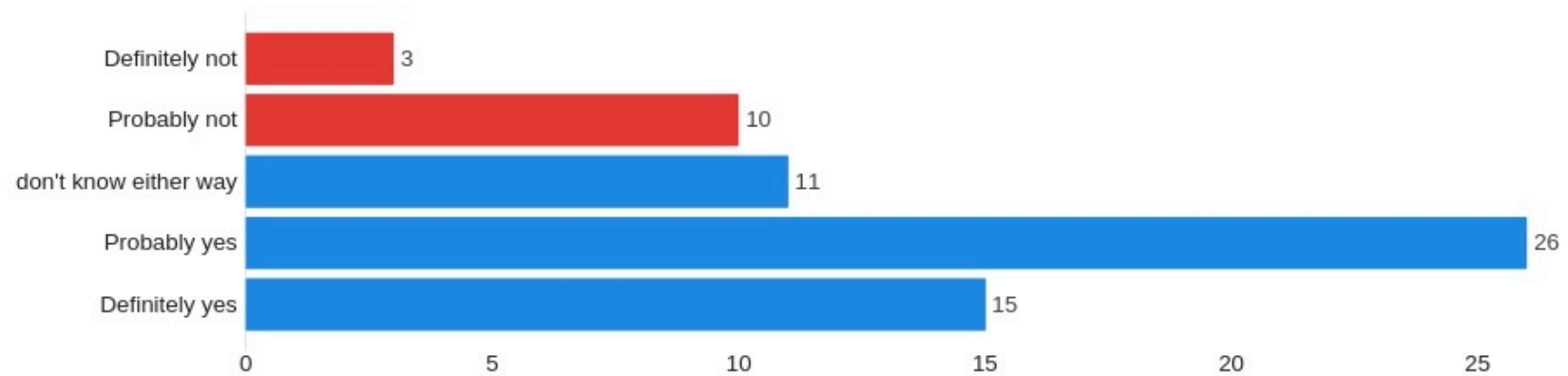
Feedback on/by 11th November



# Induction Week Poll

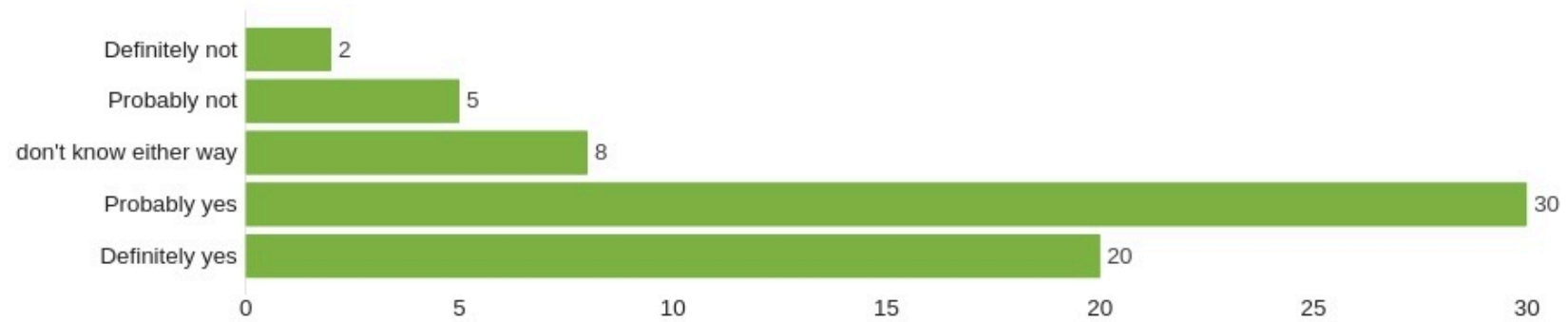
Are you excited about the module?

65 Responses



### Are you nervous?

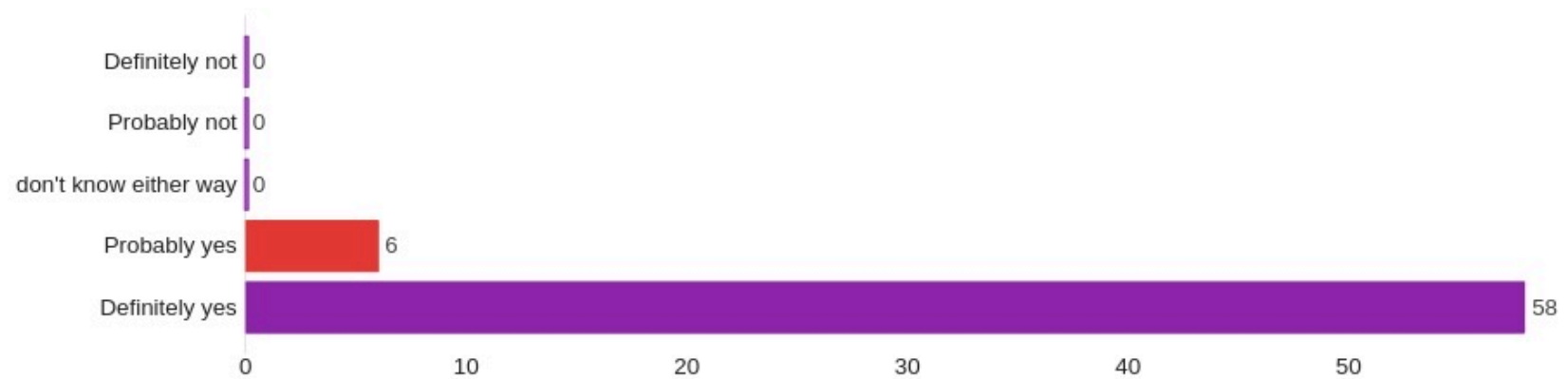
65 Responses



● Frequency

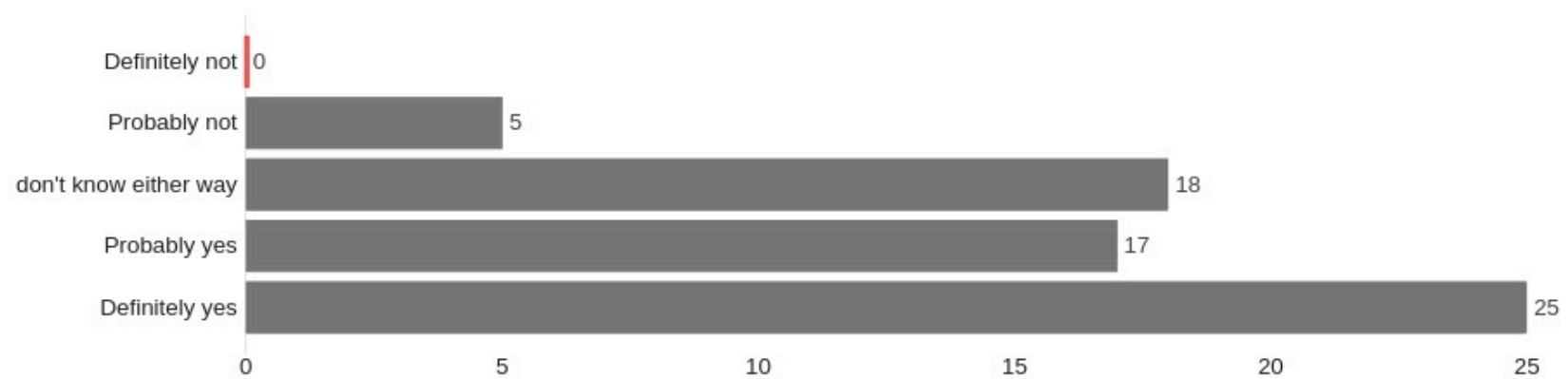
Do you want to do well?

64 Responses



Do you want to be a Researcher or Psychologist of some type?

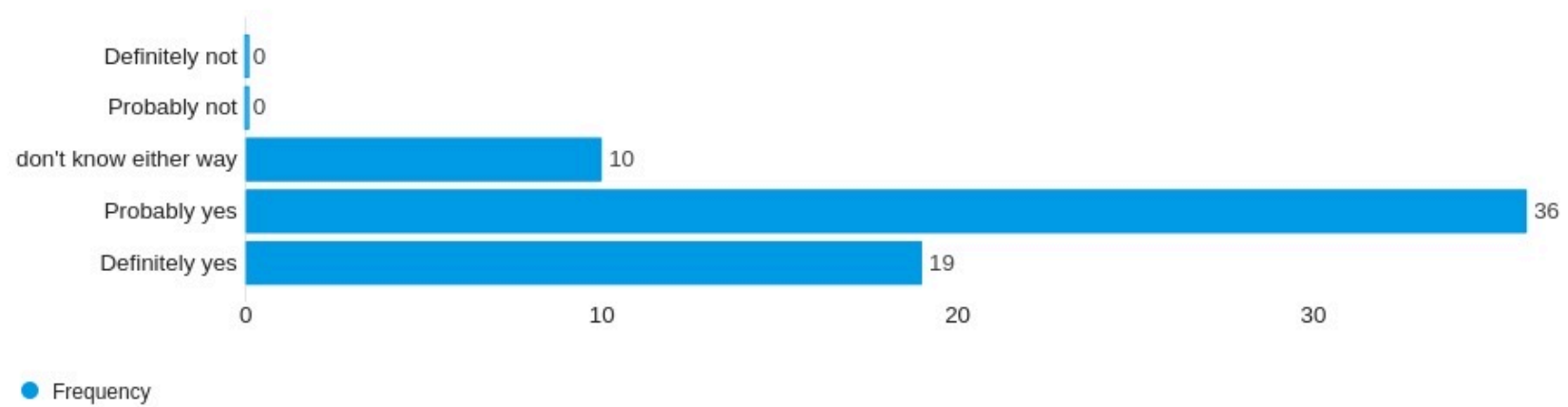
65 Responses





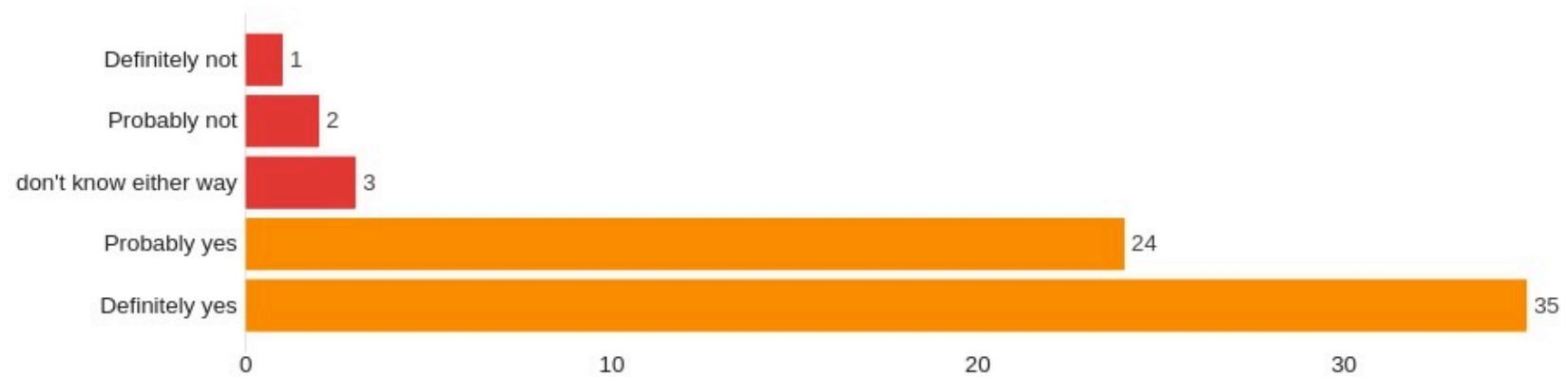
Do you think this module is going to be difficult?

65 Responses



Do you get the point of studying Research Methods?

65 Responses



When you say "I study Psychology at uni" what do people say or ask?



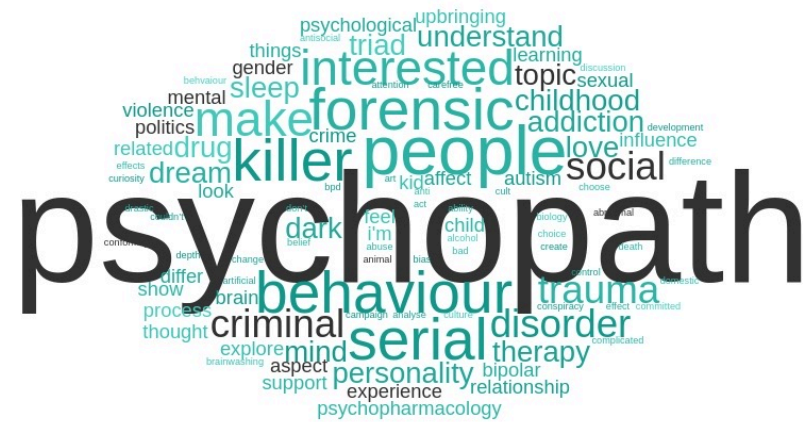
If they ask you "Why do you study Psychology?"... What do you say?



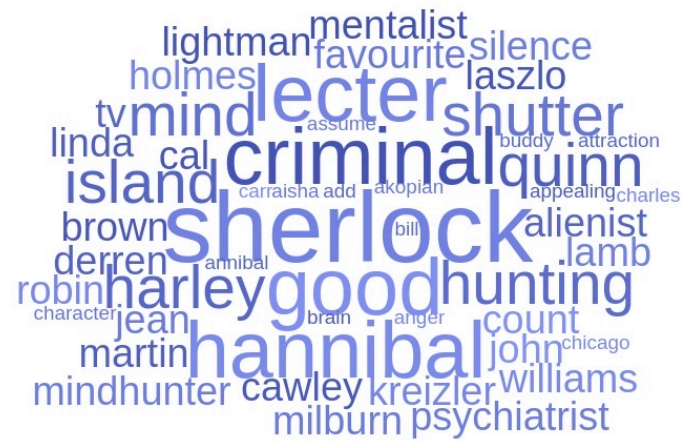
What has been your favourite part of Psychology so far? It doesn't have to be here at Goldsmiths. But maybe a module or topic area?



What are you interested in, in terms of Psychology, that you haven't touched upon yet, or that you haven't explored in any detail?  
Or just an aspect of human behaviour that fascinates you.



Who is your favourite 'fictional' psychologist (or similar)... Films, movies, TV, books, anywhere!?!







What is your favourite Psychological Experiment or Research study?





**Did you break out the popcorn for the  
'Prelude'?**

**Did any of you enjoy my movie recommendations?**

Did you pick up on the theme?

I'd actually already kinda introduced it...



**from last week**

# What is Science?

Dr. Gordon Wright, Oct 2, 2022



# A confession

- I didn't make that article 'I' wrote terribly obvious
- for a reason
- it felt a bit weird
- I didn't write it
- But there isn't really anything stopping me claiming so...
- Or is there?

## **A conundrum**

I'm going to be fiercely recommending the use of AI tomorrow.

And ALSO warning you against its use elsewhere

huh?

# CHIP topics

I want to briefly draw your attention to the third (final) piece of coursework for this module, the so-called 'CHIP Learning Log'

The earlier we flag topics and introduce little glimmers of content, the easier that will be.

1 - What is Science? An amazing opportunity to consider this while you do your Mini-Dissertation

(A more reliable overview from Professor Ed Diener here) **Open Educational Resource**

Diener, E. (2022). Why science?. In R. Biswas-Diener & E. Diener (Eds), *Noba textbook series: Psychology*. Champaign, IL: DEF publishers. <http://noba.to/qu4abpzy>

2 - Artificial Intelligence - Promise or Peril?



# CHIP topic approval process

Anyone can suggest a topic, by identifying where it sprang to mind.

people need to approve it by confirming it is relevant, with a brief rationale.

The more you engage, the more topics you get to choose from.

- A concept or debate within Psychology
- A historical issue or controversy
- A methodology or approach and its promises or limitations
- A distinctive or divisive topic
- A modern innovation or applied challenge

<https://www2.open.ac.uk/openlearn/CHIPs/>

**A psychologist? A scientist?**

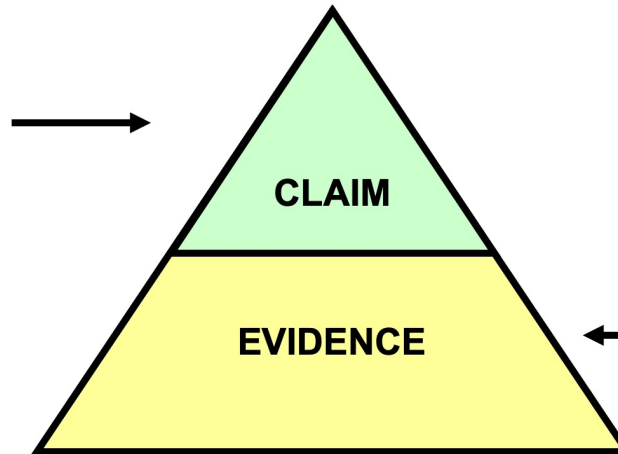



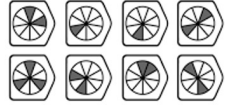


# **Prize for guessing my favourite Psychologist**

# Scientists base their 'claims' on EVIDENCE

**Theory**  
e.g., "There  
is only one  
general kind  
of  
intelligence"

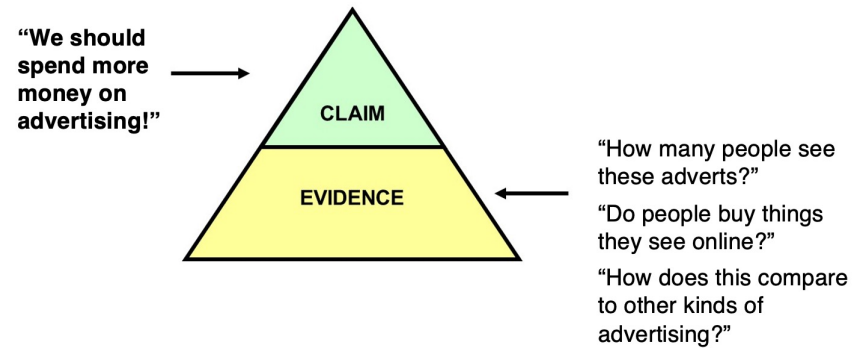


  
  
**Personality and  
Individual Differences**

**Research**  
e.g., Do children  
with better spatial  
skills also have  
better reading  
skills?

Are people good at  
painting also good  
at maths?

# Evidence quality = claim quality!



# It starts with a hypothesis

You've already been introduced to the idea of a hypothesis in stats last year.

**“Coffee will improve memory scores”**

**(Experimental Hypothesis)**



**“Coffee will have no effect on memory scores”**

**(Null Hypothesis)**



## recap on hypotheses

However, two ways we can think about what a hypothesis is:

**A hypothesis is a prediction about what will happen in a study**

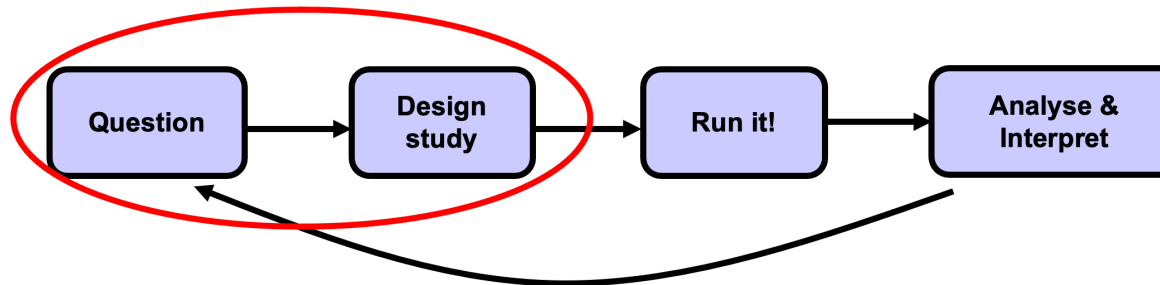
e.g., “Memory scores will be higher in the group that gets coffee”

**Or a hypothesis is a claim about how the world is**

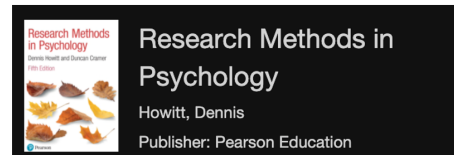
e.g., “Caffeine improves the strength of our memories”

# The research process

## The research process



Chapter 1: Types of research and inferring causality  
Chapter 2: Aims and hypotheses in research  
ON THE READING LIST AND AVAILABLE ONLINE

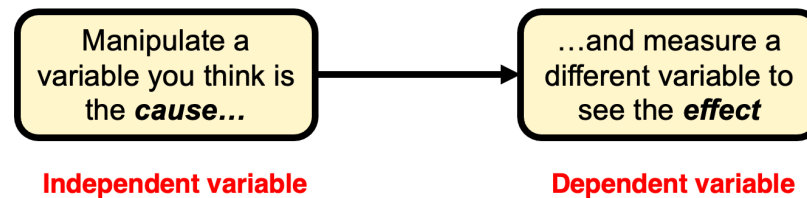




# The simplicity of an experiment

## Experiments

- The word *experiment* has a very specific meaning in science
- Involves manipulating a variable to see the effect on another variable
- A way of testing claims about cause and effect



# Operationalisation

Operationalisation is a key process in designing a research study. This involves translating general claims about cause and effect into specific variables to we can measure and manipulate.

“Caffeine improves the strength of our memories”

**Cause: Caffeine**

**Effect: Memory strength**

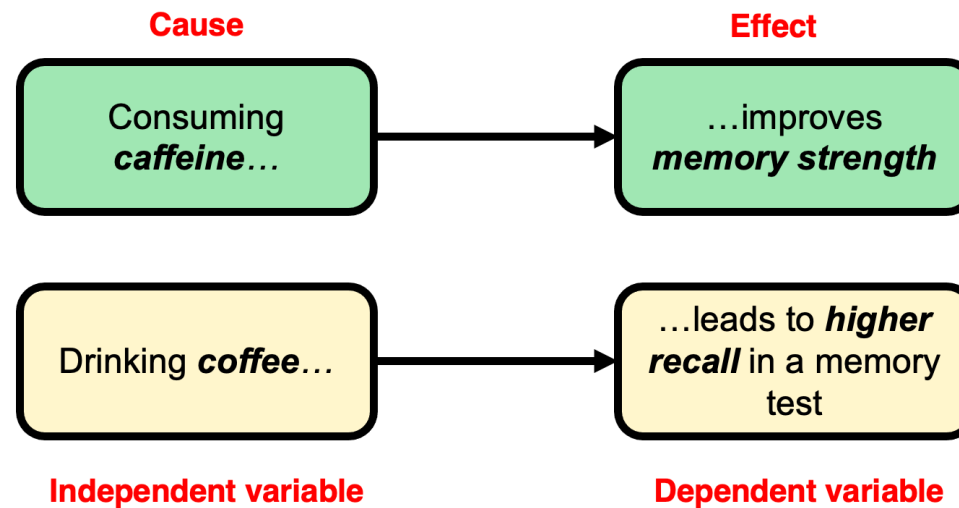
“Memory scores will be higher in the group that gets coffee”

**Independent variable: Coffee**

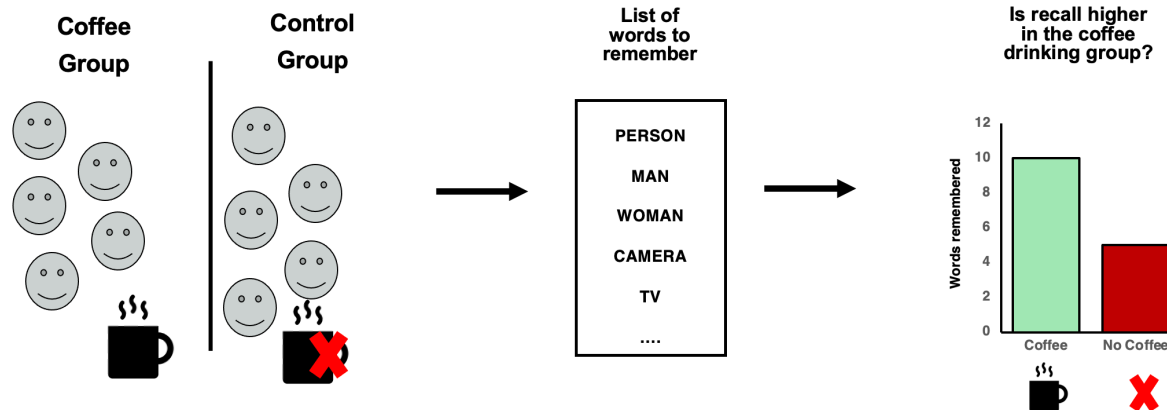
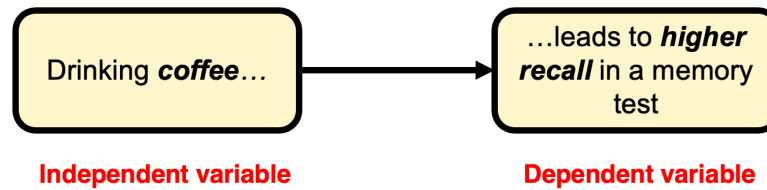
**Dependent variable: Memory scores**

# The challenge of operationalisation

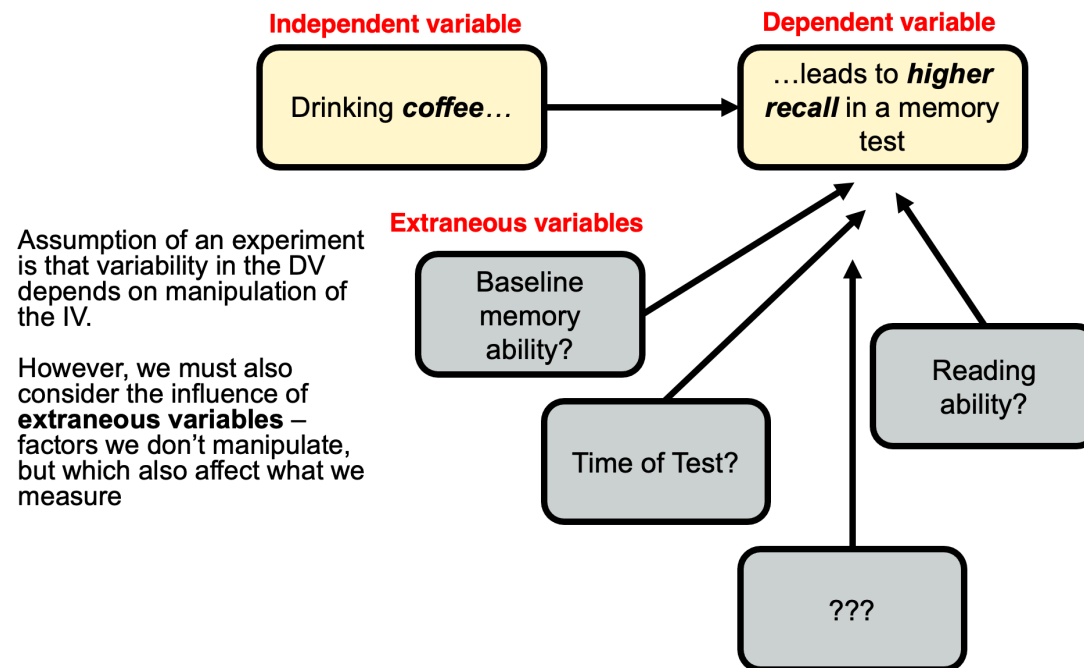
Operationalisation = Translating general claims into specific IVs and DVS  
e.g.,



# A toy example



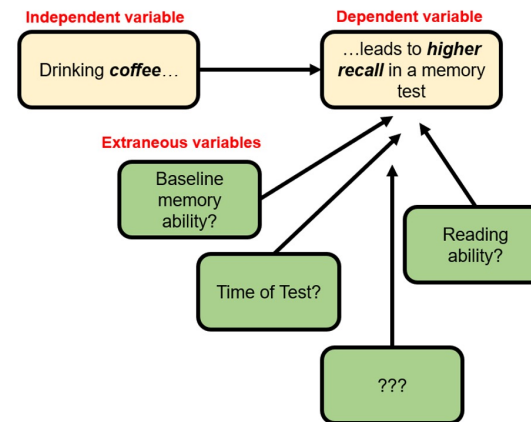
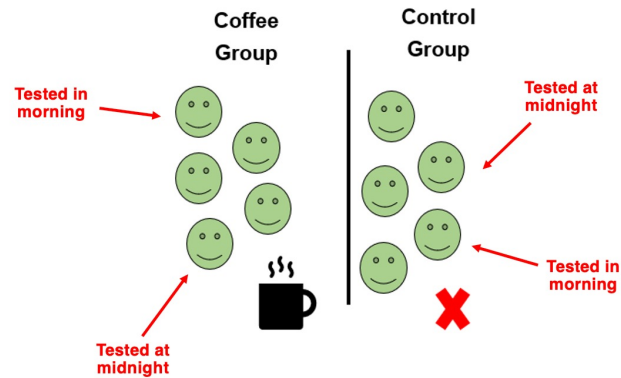
# Extraneous variables



# Usually...

Most **extraneous variables** just add noise to your measurements i.e. they add variability to your dependent variables that is separate from your manipulation

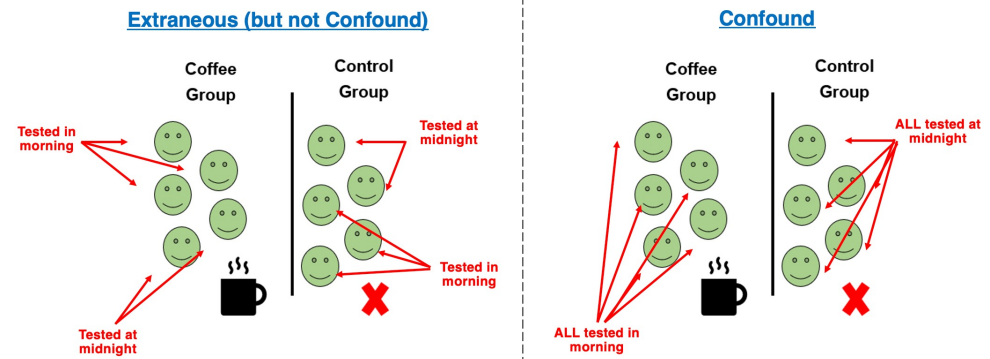
e.g., if time of test affects memory, and this randomly varies between groups, will make it harder to detect effect of manipulation



**but occasionally...**

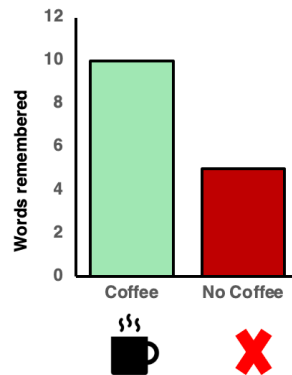
you hear of ‘confounds’ or  
‘confounding variables’

A confounding variable is an  
extraneous variable that  
systematically varies with one of your  
independent variables. These are  
rare, but nothing can save the  
experiment.

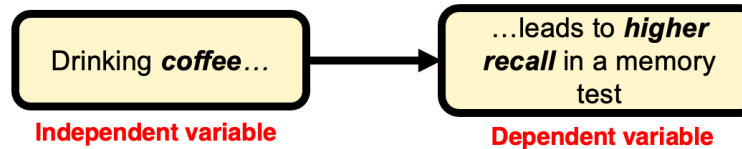


# An impossible interpretation

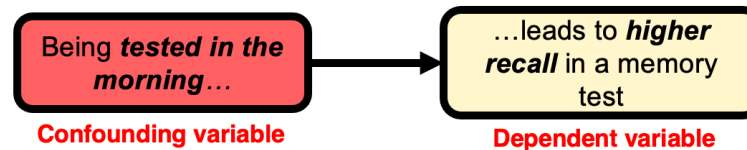
If things are **confounded**, and we see this pattern of results....



*It could be....*



*Or it could be....*



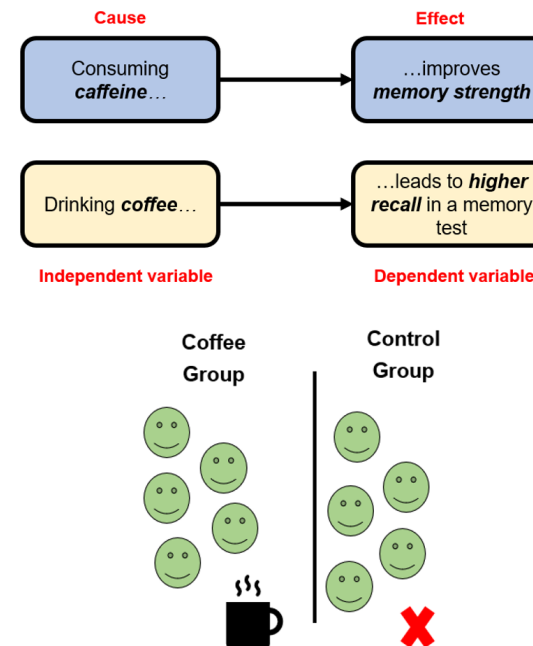
Confounds make results impossible to interpret!



# Manipulations almost always introduce potential confounds

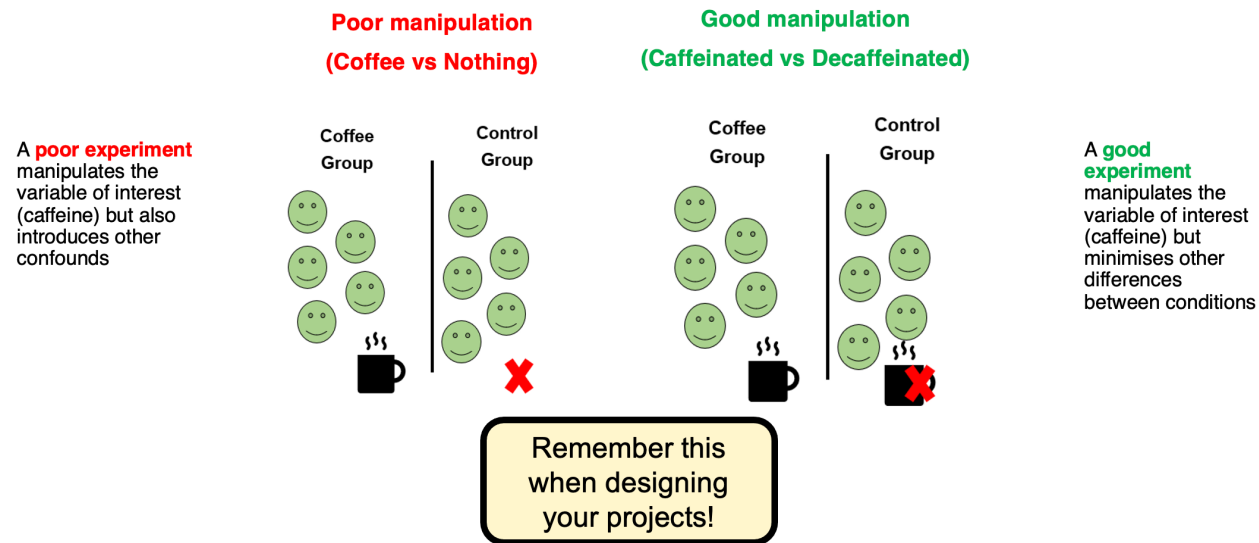
Could be:

- **Caffeine?**
- Drinking something warm?
- Drinking anything?
- Holding a mug?
- Brief social interaction with the experimenter?
- ???



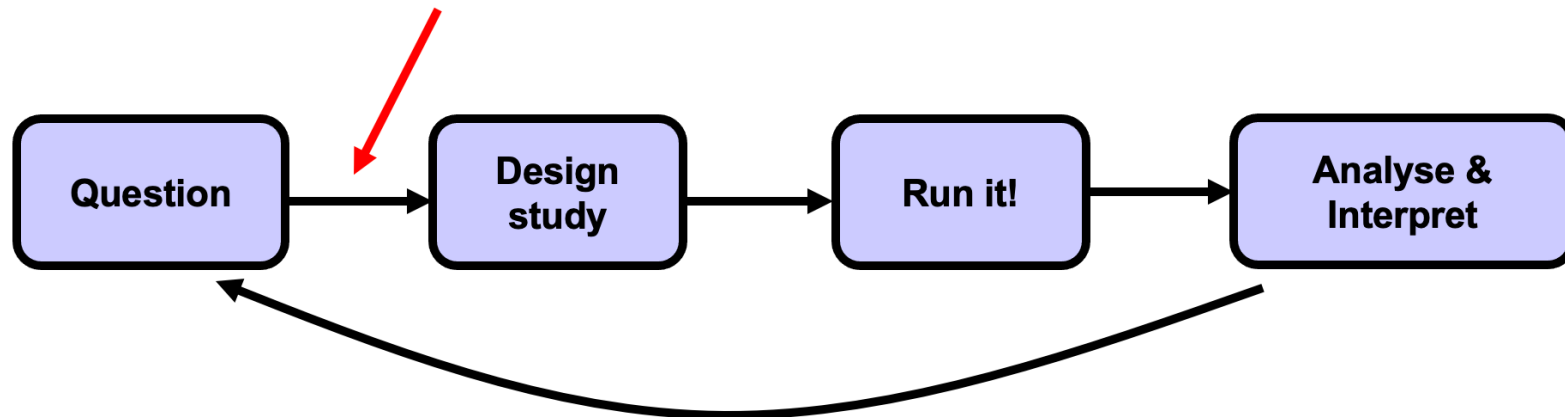
# Experimental skill + careful thought + piloting + randomness!

Good manipulation = fewest possible confounds



# The importance of operationalising your variables well

Good operationalisation is key to good study design.



If operationalisation from broad question to specific details is bad, the study can't answer the question we are interested in

# Reading along

I highly recommend reading along with the general topics we cover in the first few weeks.

Research Methods in Psychology by Dennis Howitt and Duncan Cramer is excellent. Chapter 2 in that book (right at the top of the module reading list and [here](#)) deals with Hypotheses and aims of research, essentially what we cover this week, and Chapter 1 deals with the basics and golden rules of research design and designing good experiments.



# Lab preview

# Tomorrow

1. Complete the Pulse
2. Finalise your groups (3 or 4 people, all from same Personal Tutorial group)
  - Submit a list of names to your Lab Tutor
  - Discuss any problems you are facing
3. Agree a broad general focus for your group research and write it in your lab notebook
  - This is now functioning and available in the right hand margin of the VLE page. It's an experiment, so please give feedback!
4. Start establishing how you are going to work as a team and identifying milestones



**Any Questions?**