

## Research Methods Revision Guide

### Aims & hypotheses

#### AIM

States what the researcher is trying to find out.



#### HYPOTHESIS

A testable statement, worded as a prediction, with variables **operationalised** (precisely defined to make them *measurable* in the form of *observable* behaviour e.g. **DON'T** just say condition A/B, will do better/worse).

e.g.s of hypothesis types.

#### DIRECTIONAL

"Men will score significantly higher than women in a test of visuo-spatial ability"

"There will be a significant positive correlation between income and IQ score."

#### NON-DIRECTIONAL

"There will be a significant difference between the scores of men & women in a test of visuo-spatial ability"

"There will be a significant correlation between income and IQ score."

(A NON-DIRECTIONAL HYPOTHESIS IS USUALLY WRITTEN WHEN THERE HAS BEEN NO/CONTRADICTIONARY PRIOR RESEARCH)

### Pilot Studies

<b>Definition of a pilot study</b>	A small-scale study done <i>before</i> the main study.
<b>What pilot studies are used to test</b>	e.g. experimental procedures, a coding system in an observation, questions of a questionnaire etc.
<b>Aim of pilot studies</b>	e.g. to check for any ambiguity of questions; any flaws in the test; ensure reliability/accuracy of measurements; ensure ethical issues have been addressed, etc. <b>TRY TO MAKE IT SPECIFIC TO THE RESEARCH DESCRIBED.</b>

The sample is a subset of the population that should be **representative** of the target population (the entire group a researcher is interested in) allowing results to be **generalised**. An unrepresentative sample can **bias** results.

### Sampling Techniques

Every nth person from the sampling frame is selected.

Sampling technique	Definitions	Advantages	Disadvantages
Random sampling	Every person in the sampling frame has an equal chance of being selected for the sample	Avoids bias, as the researcher has no control over who is selected so results will be GENERALISABLE	Very time consuming to identify all the potential participants before making the 'draw'
Systematic sampling	Every nth person from the sampling frame is selected.	Through probability, the researcher will usually get a representative sample so results will be GENERALISABLE	It is less objective than random sampling, as the researcher chooses how to list people/what 'system' to use.
Stratified Sampling	The sampling frame is 'stratified' in a certain way, and participants are chosen from each group at <i>random</i> , in the right proportions	Guarantees a representative sample so results will be GENERALISABLE	Very time consuming to assess and categorise all potential participants.
Opportunity Sampling	Participants are chosen because they are convenient.	Quick and easy.	High chance of sample being biased through researcher bias so results will not be GENERALISABLE.
Volunteer Sampling	A self-selected sample e.g. respondents to an ad.	Quick and easy.	High chance of sample being biased through volunteer bias so results will not be GENERALISABLE.

\*Be prepared to EXPLAIN HOW you would carry out sampling too

e.g. **Random Sampling**

*Put the names of ALL individuals in the sampling frame and pick out the first X.*

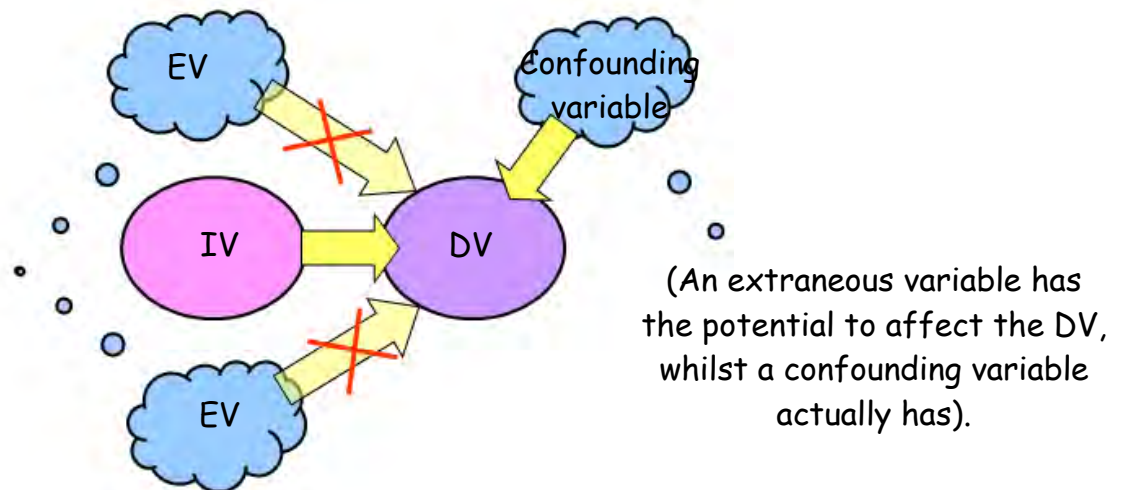
e.g. **Stratified Sampling**

*Categorise all individuals in the sampling frame according to (e.g. age, gender). Then pick from each category at random, according to the proportions which exist in the sampling frame (e.g. 50:50 male:female).*

## Experimental Methods

### The experimental setup

(VARIABLES MUST BE OPERATIONALISED i.e. defined precisely in a way which makes them measurable)



### Extraneous Variables

Range of Extraneous Variables	Range of methods to control EVs
<b>INVESTIGATOR EFFECTS</b> Any (unintentional) influence of the researcher's behaviour/characteristics on participants/data/outcome.	<b>DOUBLE BLIND</b> Neither the participant nor the researcher knows the experimental hypothesis  <b>RANDOM ALLOCATION</b> Organising participants by chance so that each has an equal chance of ending up in each condition.*
<b>DEMAND CHARACTERISTICS</b> Features in an experiment which help participants work out what is expected of them (the aim of the experiment). They may be 'helpful' or 'unhelpful'	<b>COUNTERBALANCING</b> An attempt to control order effects in a repeated measures design where one group takes part in condition A THEN B, and one group takes part in condition B THEN A.
<b>INDIVIDUAL DIFFERENCES</b> Participants in different groups are different e.g. IQ, gender, age, class etc.	<b>STANDARDISATION</b> Keeping variables the same e.g. instructions to Ps, time of day of memory test.  <b>RANDOMISATION</b> Deciding the order of variables by chance e.g. words on a memory test.

**\*e.g. Put all Ps names in a hat. The first x are allocated to condition 1, the next x are allocated to condition 2.**