experimental design

Independent groups design	Repeated measures design	Matched pairs design
Advantages		
Eliminate order effects such as practice and fatigue affects because participants are only taking part in one condition less less likely to guess the aim of the study and show demand characteristics	Eliminate participant variables	Eliminate order effects such as practice and fatigue affects because participants are only taking part in one condition less less likely to guess the aim of the study and show demand characteristics
Disadvantages		
-Researchers cannot control the effects of participant variables	Participants are more likely to experience order effects such as practice and fatigue affects this means they are more likely to get the aim of the study and show demand characteristics this causes low internal validity	Researchers cannot control all participant variables
Improvements		
-Researchers can randomly allocate partic- ipants to conditions equally distribute partic- ipant variables	Researchers may use two different tests to reduce practise effects they may also use counterbalancing which can be used to avoid demand characteristics	Researchers can conduct a pilot study to consider key variables that are important when matching

Order effects

there are two techniques researchers can use to **reduce the problem of order effect** when using a **repeated measures design**

Counterbalancing

Counterbalancing is when researchers alternate the order in which participants perform in different cionditions of an experiment. for example group one does A and then B group two does B and then A this is to evenly distribute the impact of order affects across conditions however it does not eliminate them

randomisation

Randomisation is when material for each condition in an experiment is presented in a random order for example the same words are presented but in a different order for each participate

Random allocation

Random allocation uses a non-biased method to allocate participants to experimental conditions. for example the researcher will number the participants and put the numbers in a hat. the first number that is drawn is allocated to condition A the second number that is drawn is allocated to condition B the third person that is drawn is allocated to condition A again and so on. the researcher will continue to allocate participants until equal number of participants are in each condition. for example if there are 100 participants 50 participants would be in condition A and 50 participants will be in condition B

Key terms

Target population	The target population is the wider group of people from whom the sample is drawn

By **Taalithaa** (Taalithaa)
cheatography.com/taalithaa/

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Key terms (cont)

Sample	This sample is a smaller group of people selected from a larger population for the purposes of the study

Sampling techniques

The five types of sampling techniques

opportunity sampling

An opportunity sample is a sample of those from the target population who are **most easily available** at the time of the study

strengths	weaknesses
It is the easiest sampling method because the participants are already there so it takes less time to recruit them	The sample is biased because it is drawn from a small group of the population most studies okay out in universities the participants will mainly consist of students therefore you cannot generalise the findings to the rest of the population

random sampling

A random sample is a sample of participants are selected using a random technique such as a name out of a hat so **every member of the target population has an equal chance of being chosen**

strengths	weaknesses
The sample is biased because each member of the target population has an equal chance of being chosen therefore the findings can be generalised to the rest of the population	It is time-consuming as you need to list all the participants and then contact those randomly selected

stratified sampling

Stratified sample is made by classifying the target **population into subgroups based on the frequency** in the population and then participants are selected randomly to **proportionally represent the subgroup**

strengths	weaknesses
The sample is likely to be more representative at the sample proportionately represent the subgroups in the target population the findings therefore can be generalised the rest of the population	The sampling method is time-consuming as you must identify the subgroups select participants randomly and then contact them

systematic sampling

A sample obtained by selecting **every n^{th} number from the target population** this could be by using the random number button on a scientific calculator or a random number generator

strengths	weaknesses
The sample is unbiased because the research it uses an objective system therefore the findings can be generalised to the rest of the population	The sample may be biased unless you select a number using a random number generator and then select every n^{th} number

volunteer sampling

a sample that is made up of those from the target population that **offered to take part**

strengths	weaknesses

By **Taalithaa** (Taalithaa)
cheatography.com/taalithaa/

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Sampling techniques (cont)	
It is an easy sampling method because the participants offered to take part so it takes less time to recruit them	The sample may be biased because participants are likely to be highly motivated have extra time on their hands or need money this leads to volunteer bias therefore the findings cannot be generalised to the rest of the population

By **Taalithaa** (Taalithaa)

cheatography.com/taalithaa/

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