RESEARCH METHODS NOTES

1. FEATURES OF SCIENCE

Science refers to a system of obtaining knowledge that covers general truths, principles and laws which are tested using the 'scientific method' – a systematic process to obtain objective information and to test theories.

Key features of science:

- **OBJECTIVITY** = views based on observable phenomena that can be verified by measurements and not personal opinion or prejudices. It is based on empiricism.
- **EMPIRICISM** = providing evidence by gaining information through direct observation rather than by reasoned argument or unfounded belief.
- **REPLICABILITY** = the ability for procedures and findings to be reproduced or repeated.
- **RATIONAL** = based on reason and logic.
- **SYSTEMATIC** = gathers information systematically and unbiased

We must be aware to separate common-sense, beliefs and pseudoscience when conducting scientific research.

THE SCIENTIFIC PROCESS:

- Traditional views of scientific methods included induction and deduction:

Induction is the development of general truths/theories which can be used to explain data that has been observed (however it cannot make predictions about what might be found).

Deduction is the development of general truths/theories about observed data which can then give specific hypotheses that can be tested. It starts with a theory and looks for circumstances to confirm it.

However, a downfall is that it's easy to find evidence for a theory but no amount of evidence can 'prove' a theory is right; it only takes one piece of evidence to disprove the theory and maybe this disproving evidence just has not been found yet

- Popper proposed a difference scientific method based on the Hypothetico-deductive method with has a number of different stages:
    1) Identify a problem
    2) Develop a hypothesis
    3) Devise a study
    4) Analyse and evaluate the results to see if they support the hypothesis
    5) Modify and repeat the process depending on your evaluation
    6) Develop a theory

The hypothetico-deductive method is concerned with falsifiability (ability to show a theory is false). Researchers should try to actively find ways of disproving the theory and, if they cannot, this provides strong support for the theory.

PARADIGMS

A paradigm = a shared set of assumptions and views about a view or approach.

- The accepted paradigm tends to dominate the science and limit and determine the types of questions that scientists ask.
- If a new theory comes forward and is accepted by the scientific community, it becomes the new paradigm.

WHY DID SOME REJECT THE CONVENTIONAL SCIENTIFIC APPROACH?:

1. You cannot study people in the same way as physical phenomena
2. It's usually studied in a lab which is an unnatural condition which could provoke demand characteristics
3. The scientific approach emphasises control so tries to study one variable in isolation – but how can this really be applied to psychology which studies people?
4. By emphasising control, it tends to treat people as passive participants. So information gained is likely to be superficial.
5. Critics believe the notion of objectivity in science is a myth as past experiences, beliefs and ideas make it impossible to be truly objective.

- Due to these rejections, an alternative approach has developed called the "new paradigm approach"
- This approach tries to understand the subjective world of the participant by focusing on underlying values and emotions and studies data (such as in-depth interviews) that cannot be easily reduced to numbers.

2. VALIDATING NEW KNOWLEDGE

PUBLISHING AND PEER REVIEWING

- It is mostly published in scientific journals and subjected to peer reviews.
- The peer reviewers (usually experts in the field) read and assess the whole study and provide comments and recommendations by analysing the research in terms of its validity, significance and originality. Some may not be accepted to be published in the journals.
- Peer reviewing helps with:
    - Allocation of research funding – reviews determine if funding would be worthwhile

- Preventing publication of faulty studies
- Helps spot faults that the researcher may not see themselves

PROBLEMS OF VALIDATION

- *Consistency of previous knowledge* – research that does not 'fit' with previous knowledge is often seen as suspect and rejected.
- *Values in science* – it is usually impossible to separate research from cultural, political or personal values and research is more likely to be published if the author and the reviewer share the same values
- *Bias in peer reviewing* – bias can occur due to personal values, 'institution bias' (favouring research from prestigious institutions) or gender bias
- *File drawer phenomenon* – favouring positive results and not publishing negative findings.

3. DESIGNING PSYCHOLOGICAL INVESTIGATIONS

RESEARCH METHODS:

❖ EXPERIMENTAL method:

Experiments are designed to establish a cause an effect by manipulating the IV and measuring its effect on the DV.

It tries to eliminate other variables such as extraneous variables (ones that might affect the performance of the participant) which could become confounding variables (ones that are confused with an get manipulated along with the IV and so have unintended effects on the DV).

Experiment TYPE:

LAB:

- ✓ High degree of control
- ✓ Good replicability
- ✓ Cause and effect usually can be established
- ✗ Lack of ecological validity
- ✗ Artificiality = lacks mundane realism
- ✗ Experimenter bias
- ✗ Problems operationalising the IV and DV (by operationalising variables, the measure of behaviour might become too specific
- ✗ Demand characteristics

FIELD:

An experiment in the real world – IV manipulated and as many variables controlled

- ✔ High ecological validity
- ✔ No demand characteristics
- ✔ Experimenter effects reduced
- ✘ Less control – may be extraneous variables
- ✘ Difficult to precisely replicate
- ✘ Ethics – informed consent?
- ✘ Sample bias – participants not randomly allocated
- ✘ Time consuming and expensive

NATURAL

The IV occurs naturally and experimenter records effects on DV. Good when IV. cannot be manipulated for ethical issues.

Same advantages and disadvantages as field experiments.

Experimental DESIGN:

1. repeated measures

The same participants in both conditions

- ✔ Eliminates participant variables
- ✔ Fewer participants needed
- ✘ Order effects (e.g. boredom or practice)
- ✘ Can't use same stimulus materials
- ✘ Easier to guess the aims of the experiment – demand characteristics

2. independent groups

participants randomly allocated to different groups

- ✔ no order effects
- ✔ can use same stimulus materials
- ✔ less chance of demand characteristics
- ✘ participant variables
- ✘ more participants needed

3. matched pairs

participants matched closely in pairs and randomly allocated to one condition.

- ✔ No order effects
- ✔ Can use same stimulus material
- ✔ Tries to control participant variables
- ✔ Less chance of demand characteristics
- ✘ Difficult to match people
- ✘ More participants

❖ ***CORRELATIONAL method***:

To investigate the strength of relationship between two variables. The strength is expressed as the correlation coefficient (a number between -1 and +1)

- ✔ It allows researchers to analyses a relationship between variables that cannot be experimentally manipulated.
- ✔ Allows predictions to be made
- ✘ Do not show cause and effect
- ✘ Extraneous influencing factors

❖ ***OBSERVATIONAL method:***

Behavioural categories can be identified or the use of time sampling (recording behaviour every certain amount of minutes) or event sampling (recording every time a behaviour occurs)

Can be:

Naturalistic (observing natural behaviour)

- ✔ Higher in ecological validity
- ✔ Can be used in situations where manipulation of IV would be unethical
- ✔ Less demand characteristics
- ✔ May act more normally
- ✘ Little control over variables
- ✘ Cannot conclude cause and effect
- ✘ Observer bias
- ✘ Hard to replicate to check inter- and intra-rater reliability
- ✘ Ethics if they don't know they're being observed

Controlled

- ✔ Some confounding variables controlled
- ✘ Behaviour may not be natural
- ✘ Observer bias
- ✘ Might differ their behaviour if they know they're being watched

Participant (observer interacts with observed)

- ✔ Easier to understand the persons behaviour
- ✔ High in ecological validity
- ✘ Observations done retrospectively = unreliable
- ✘ Observer can become too involved and data can be subjective.
- ✘ Observer bias

Non-participant

- ✔ Observations made as they happen
- ✔ Observer can remain objective

Pilot studies can often be used first to check all aspects of the research so that changes can be made in light of this.

- ✗ The meaning behind behaviour may be unknown.
- ✗ Observer bias

They can also be overt (are aware they're being observed) or covert (not aware)

DATA COLLECTION:

SURVEYS:

Questions can be open or closed.

- ✓ Gathers information from a large number of people efficiently
- ✓ Can use quantitative or qualitative analysis
- ✓ Quite easy to replicate
- ✓ Don't require researcher to be present = reduce investigator effects
- ✓ People may be more willing to reveal personal information
- ✗ Low response rates = reduce validity
- ✗ Social desirability
- ✗ People may misunderstand questions
- ✗ Not flexible – researcher cannot ask other questions that might arise.
- ✗ Only includes people who can read/write

INTERVIEWS:

They can be structured, unstructured or semi-structured

- ✓ They tend to be more flexible as researchers can interact to clarify information
- ✓ Detailed qualitative information
- ✓ Unstructured gives new insights
- ✓ Sensitive issues can be explored
- ✗ Investigator bias
- ✗ Time-consuming
- ✗ Interviewer training

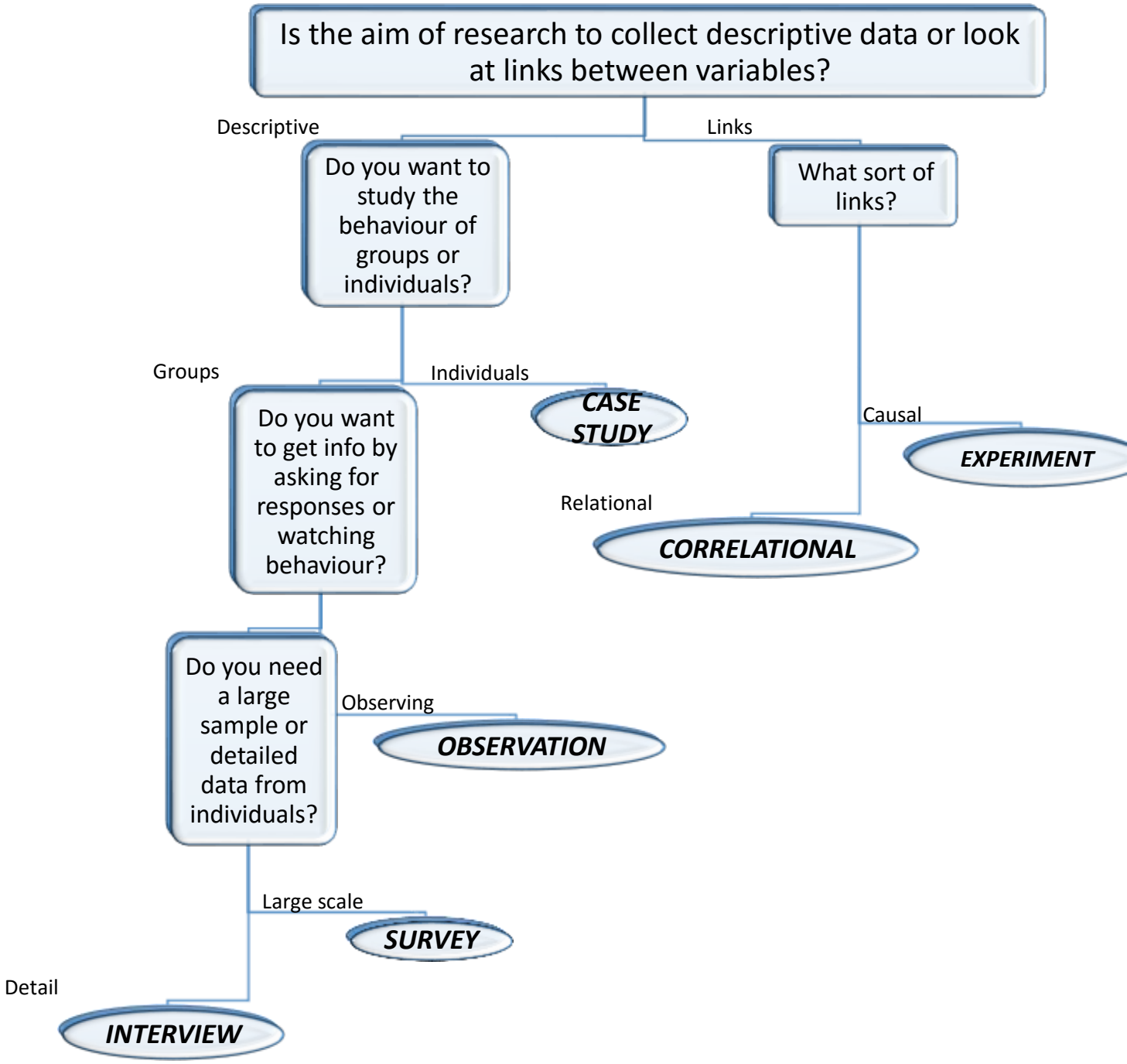
CASE STUDY:

An idiographic in-depth study of an individual or small group.

Sometimes data from one individual can challenge established theories

- ✔ Provides rich, meaningful data
- ✘ Difficult to generalise = low population validity
- ✘ Difficult to replicate = hard to test the reliability
- ✘ Researcher bias
- ✘ Often relies on participants' memories.

HOW DO WE CHOOSE WHICH RESEARCH METHOD??



4. RELIABILITY AND VALIDITY

RELIABILITY

Reliability refers to how much we can depend on any particular measurement and how much we can repeat the same study and consistently get the same result time and time again.

EXTERNAL reliability → the ability to replicate the results. It's typically assessed using the test-retest method or test the correlation between two scores.

INTERNAL reliability → the consistency of a measure within a test. Its typically assessed using the split-half method (comparing half the test with the other to check consistency)

- ***Inter-rater reliability*** = the degree to which different rates/observers give consistent estimates of the same object
- ***Test-retest reliability*** = same test is given to the same sample on two different occasions.

How can you **improve** reliability?

Inaccurate measurements or data will reduce reliability but these inaccuracies can be reduced by:

- Take more than one measurement from each participant (reduces impact of anomalies)
- Use pilot studies to check proposed method works properly.
- When using more than one investigator, the ways they collect and record data should be standardised to improve inter-rater reliability
- Checking data carefully when its recorded and written down.

VALIDITY

Validity refers to whether or not a study is measuring what it is supposed to measure.

EXTERNAL validity → how well the results can be generalised beyond the study itself and generalised to other populations (population validity) or other settings (ecological validity)

INTERNAL validity → the ability of the study to test the hypothesis that it was designed to test.

What affects internal validity?:

- The way we operationalise variables as we may unintentionally infer measurements on things that cannot be directly measured. This could then lead to us actually measuring the wrong thing and so we are measuring confounding variables.
- Demand characteristics
- Experimenter bias

  } This can be reduced using a double-blind technique
- The design used – with repeated measures, validity can be affected by order effects (this can be reduced by counterbalancing). With independent groups there are participant variables.

Assessing validity:

- Face validity – a judgement about whether a test seems to be valid
- Content validity – asking an expert in the field to assess and see if the study is an accurate measure
- Construct validity – assess how close the study relates to underlying theoretical constructs
- Criterion validity – whether a test of a particular construct relates to other measures of it. there are two types:
    - Concurrent validity – whether the test shows similar findings to another existing measure, for example take another measure from the same participant and compare the two sets of data.
    - Predictive validity – how well a test predicts future performance

Internal Vs external validity:

There is a trade-off between the two → the more confounding variables are controlled, the more the internal validity is improved but then the more artificial the environment is so the less the external validity is. Which one you want most depends on the nature of the specific study.

- Validity and reliability are linked – unreliable measures do not have internal validity, but the reverse is not true, measures can be reliable but not valid

SAMPLING:

TYPES;

- *Random sampling*

Every member of the population has an equal chance of being selected (e.g. placing names in a hat)

- ✗ Researchers cannot force a person to participate so there is always some element of volunteering
- ✓ Sample is likely to be representative so results can be generalised
- ✓ High population validity

- *Opportunity sampling*

Selecting participants who are readily available and willing to take part.

- ✗ Likely to be biased so results cannot be generalised = low population validity
- ✓ Easiest and cheapest method

- *Volunteer sampling*
- ✗ People who volunteer are usually more stable and outgoing than those who do not – increased bias
- ✗ More prone to demand characteristics

When choosing a sample, you must see whether the sample has population validity, this can be increased when the sample is representative of the target population.

5. ETHICAL ISSUES

ASPECTS OF ETHICS TO CONSIDER:

(1.) Informed consent
(2.) Deception
(3.) Debriefing
(4.) Right to withdraw
(5.) Confidentiality
(6.) Protection from harm
(7.) Privacy in observational research
(8.) Offering advice only for which the psychologist is qualified
(9.) Colleagues of the psychologist also acting ethically

DEALING WITH ETHICAL ISSUES:

- Give participants an *information sheet* detailing the objectives of the study and what it will involve whilst also allowing them to ask the researcher anything so full informed consent can be given and deception can be avoided. The sheet should also remind them of their right to withdraw and that their data will remain confidential. The sheet needs to be signed to show they have fully understood the sheet.

- However, the nature of some research requires participants to not know the full aims of the study. Ethical guidelines acknowledge this and there are steps to be taken: first look for alternatives, if not inform participants at the earliest stage possible, give them the right to withdraw their data or give *retrospective consent*. It can also be possible to get permission to deceive by having the participants take part of several studies and asking them if they wouldn't mind being deceived during some of them (*prior general consent*). Deception can also be helped using *presumptive consent* (getting consent from people with similar backgrounds)

Importance of debriefing includes … It completes the participants' understanding of the study, it allows the researcher to monitor any unforeseen negative effects and find out if anything has upset the participant and therefore bring back the participant into the state they entered.

ETHICAL ISSUES WITH ANIMAL RESEARCH:

- ✔ It may benefit humans or even other animals in the long term
- ✔ Animals offer the opportunity for greater control and objectivity
- ✔ There is enough physiology and evolutionary past in common to justify conclusions drawn
- ✘ Are animals sentient beings? Do they experience emotion/pain? Evidence suggests they *respond* to pain but it may not be the same as conscious awareness. Though other evidence shows that some primates do show self-awareness

- ✘ Animals have a right to be treated with respect.

This can be helped by Reduction (using less animals), Replacement (of alternate methods when possible) and Refinement (use techniques to reduce stress)

PROBABILITY (p) = a numerical measure of chance and how likely it is that something will happen.

Conditional probability is the probability of an event if something else occurs. (such as smoking increasing probability of cancer)

Probability is expressed as a number between 0 (event will not happen) and 1 (event definitely will happen)

$$\text{PROBABILITY} = \frac{\text{NUMBER OF } \mathbf{PARTICULAR} \text{ OUTCOMES}}{\text{NUMBER OF } \mathbf{POSSIBLE} \text{ OUTCOMES}}$$

The generally accepted level of significance (the probability that is small enough and the level at which the null hypothesis is accepted/rejected) is 0.05 (5%). This means that there is a 5% probability that the results would occur even if there was no difference or association between the results.

Error when null hypothesis is **rejected** but should have been **accepted**

Error when null hypothesis is **accepted** but should have been **rejected**

- We choose 0.05 to balance the risk of type 1 and type 2 errors. At the 0.05 level there is a 1 in 20 chance of making a type 1 error.

Sometimes psychologists might want to work at the 0.01 level if findings are likely to be controversial/have ethical dilemmas or if the study was theoretically important.

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6. QUANTITATIVE DATA

TWO STAGES OF DEALING WITH QUANTITATIVE DATA:

1. Summarising data - descriptive statistics (using techniques to summarise data)
2. Analysing data using a statistical test – inferential statistics (using tests to draw conclusions)

1. SUMMARISING DATA:

- **Measures of central tendency** → they tell us where the middle or more frequent values are so we can compare two sets of scores; the mean, median and mode.
- **Measures of dispersion** → they describe the spread of scores or how much variation there is around the mean; the range and standard deviation (remember with standard deviations, the larger the value, the larger the spread of results showing that the effect being tested worked differently for different people)
- **Graphs** → allow patterns to be seen; the histogram, bar chart and scattergram;

  Histogram's show the distribution of a whole set of data – the bars will be joined and the width of each bar is equal as they present a continuous scale. The columns represent the frequency and all scores should be represented even if they are empty

  Bar charts show numeracy statistics – the bars will be separated as the scale is not continuous. Not all categories need to be put onto the x-axis

  Scattergrams show the relationship between two variables and the strength and direction of the correlation.

2. CHOOSING A STATISTICAL TEST

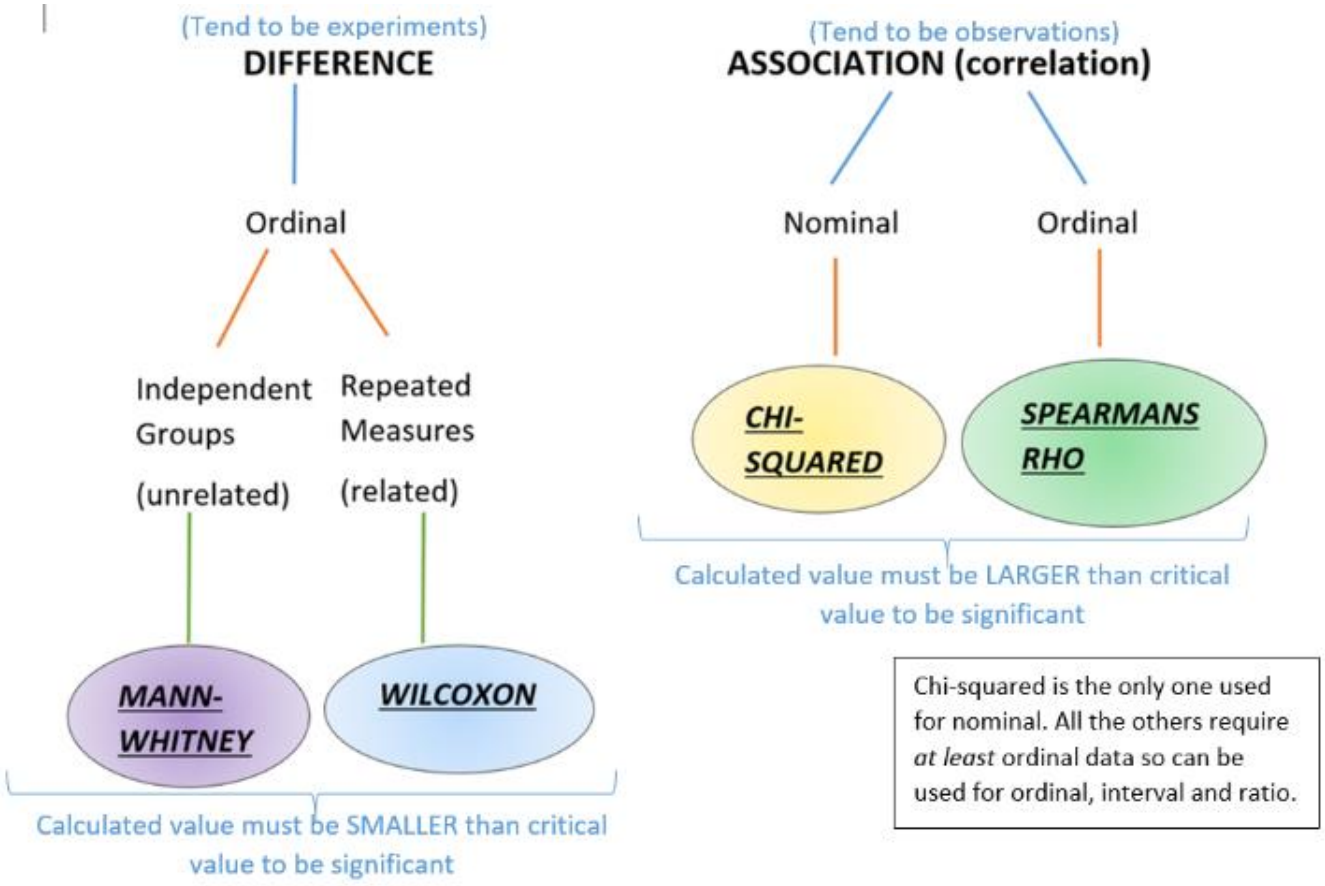
Statistical tests are grouped into two types;

PARAMETRIC TESTS – these can only be used when the data from a study meets a number of criteria such as the level of measurement and the distribution of data. They require interval data (when there's equal intervals on a measurement scale) or ratio data (when there's equal intervals on a measurement scale but there is also a true point zero)

NON-PARAMETRIC TESTS – these can be used when any of the criteria for a parametric tests are not met. They can use interval/ratio or ordinal data (when scores are put in order first) and some deal with nominal data (information is put into categories)

THE 4 TESTS WE WILL LOOK AT BELOW ALL ANALYSE NON-PARAMETRIC QUANTATIVE DATA!

How to decide on which of the 4 tests?:



MAKING CONCLUSIONS FROM THE TESTS begins with identifying the hypotheses:

(1) Identify the hypothesis

- The **null** hypothesis – there is no difference or relationship between variables
- The **alternate** hypothesis – there will be a difference or relationship between variables

(2) Is it a one-tailed or two-tailed hypothesis?

Critical values will be different depending on whether it is one- or two-tailed.

- **One-tailed** hypothesis = Directional

- **Two-tailed** hypothesis = Non-directional – just states there will be a difference.

(3) What kind of data is it?

- **NOMINAL** – the counting of frequency data. The data is in separate categories (e.g grouping people into tall or short)
- **ORDINAL** – ranking data (ordering it in some way. E.g. lining up people in order of height where the 'difference' between each person is not the same)
- **INTERVAL OR RATIO** - when there's equal intervals on a measurement scale (E.g. measuring people's heights) or ratio data when there's equal intervals on a measurement scale but there is also a true point zero

THE STATISTICAL TESTS:

1. SPEARMAN'S RANK ORDER CORRELATION COEFFICIENT (rho)

It is used to correlate pairs of scores that can be ordinal, interval or ratio. The accuracy of the test is reduced if there are many tied ranks.

It is based on ranking the scores → if the ranks are similar = positive correlation

→ if the ranks are opposites = negative correlation

USE WHEN:

- Testing for a correlation
- Data is at least ordinal (ordinal, interval or ratio)
- Looking for an association between different measurements from the same sample

CALCULATION:

(a) Place the data given into columns
(b) Rank each score
(c) Take away the ranks (d)
(d) Find d^2
(e) Add all the d^2 to get a total
(f) Use the formula to calculate rho
(g) Compare the calculated rho to a critical value (given in the table);
    a. Determine whether the hypothesis was one- or two-tailed.
    b. Whichever tail it was shows you whether to look at the 1st or the 2nd column
    c. The number of row down you look at depends on the number of scores/pairs you have

Score	RANK	time	RANK	d (take away ranks)	d^2

58	3	11	2	(3-2) = 1	1
46	2	100	5	(2-5) = -3	9
11	1	5	1	(1-1) = 0	0
86	4.5	257	5	(4.5-5) = -0.5	0.25
86	4.5	47	3	(4.5-3) = 1.5	2.25
				SUM OF d^2 =	**12.5**

If two are the same, you add the two ranks and divide by the number that are the same. For example, 86 appears twice for rank 4 and 5 so you do 4+5÷2 = 4.5

To calculate the rho value, use the formula given;

$$Rs = 1 - \left[\frac{6 \times \text{'Sum of } D^2\text{'}}{n^3 - n}\right]$$

Number of pairs in sample

CONCLUSION:

- Calculated value **higher** than critical value = **reject** null hypothesis. There is a significant positive *correlation* between the data (in the exam give specific reference to the actual correlation in the example given). *Less than 0.05* probability that the correlation occurred by chance.

- Calculated value **lower** than critical value = **accept** null hypothesis. There is *no significant correlation* between the data. *Greater than 0.05* probability that correlation occurred by chance.

2. MANN – WHITNEY U TEST

USE WHEN:

- Testing for a difference
- Data is at least ordinal (so ordinal, interval or ratio)
- Independent groups design has been used

CALCULATION:

(a) Rank ALL the scores (so if there's 10 in each of the two columns then rank the data from 1-20)
(b) Choose the smaller sample size one (or choose either if they're equal) and add up the ranks to give the value of T
(c) Calculate U and U' using the formula:

$$\mathbf{U} = N_1 N_2 + \left[\frac{N_1 (N_1 + 1)}{2}\right] - T_1 \qquad \mathbf{U'} = N_1 N_2 - U$$

N_1 = number of values in the smallest sample

N_2 = number of values in the largest sample

(d) Out of U and U', choose the smallest value!
(e) Compare to the critical value:
    a. Decide whether the hypothesis is one- or two-tailed (there's a different critical value table for each)
    b. Check what your N_1 and N_2 numbers are and go down and across until you meet at the point which is the critical value.

CONCLUSION:

- If calculated value is **higher** than critical value = **accept** null hypothesis. There is no significant correlation between the data There is *greater than 0.05* probability that the results occurred by chance.
- If calculated value is **lower** than critical value = **reject** null hypothesis. There is a significant correlation between the data. There is *less than 0.05* probability that the results occurred by chance.

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3. WILCOXON

USE WHEN:

- Testing for a difference
- Repeated measures design
- Data is at least ordinal (ordinal, interval or ratio)

CALCULATION:

(a) Put the data in columns
(b) Calculate the difference between the scores (note whether it is + or -)
(c) Rank the differences (don't take account of whether it is + or – and omit differences that are '0')
(d) The ranks of all the differences that are positive, add them up
(e) The ranks of all the differences that are negative, add them up
(f) Whichever of these sum's are the smallest is the value of T
(g) Compare T to the critical value;
    a. Decide whether the hypothesis is one- or two- tailed
    b. Find N – this is the number of ranks you have. However, values with a difference of 0 are omitted so don't count these in the value of N.

CONCLUSION:

- If the value of T is **lower than** the critical value = **reject** the null hypothesis. There is a significant correlation between the data. *Less than 0.05* probability that results occurred by chance

- If the value of T is **higher than** the critical value = **accept** the null hypothesis. There is no significant correlation between the data. *Greater than 0.05* probability that results occurred by chance.

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4. CHI - SQUARED

USE WHEN:

- Data is nominal
- Looking for associations or differences between two conditions
- Data is expressed in frequencies (but not in percentages) I.e. nominal
- Data in each frequency is independent (something in one category cannot occur in another)
- Most chi-squared tests are two-tailed

Chi-squared is prone to type one errors when expected frequencies are low

CALCULATION:

(a) Work out the observed results (the results given to you in the table) and the expected results (the mean or use the table below):

		variable		
		A	B	
variable	C	Results found in experiment		Row total
	D			Row total
		Column total	Column total	GRAND TOTAL

EXPECTED RESULTS = $\frac{\text{row total x column total}}{\text{Grand total}}$

example you'd do → 'column total for A' x 'row total for C' ÷ 'grand total'. Then you'd do the same for column A but row D and so on

(b) Calculate chi-squared

Observed	Expected	Observed - expected	(observed – expected)^2	$\frac{(\text{observed} - \text{expected})^2}{\text{expected}}$
			CHI SQUARED =	COLUMN TOTAL

(c) We need to calculate the critical value:
   a. Calculate the degrees of freedom = (number of rows – 1) x (number of columns – 1) {also can be how many categories you have – 1}
   b. Use the degrees of freedom to calculate the critical value (use to table given)

CONCLUSIONS:

- If $\chi 2$ is **less than** the critical value = **accept** the null hypothesis. There is a significant association between the results. *Greater than 0.05* probability that the difference between expected and observed results occurred by chance
- If $\chi 2$ is **greater than** the critical value = **reject** null hypothesis. There is no significant association between the results. *Less than 0.05* probability that the difference between expected and observed results occurred by chance.

8. QUALITATIVE DATA

Qualitative data involves an in-depth analysis of experiences, beliefs and attitudes which involves the interpretation and thematic analysis of verbal material.

Qualitative samples tend to be small, clearly defined groups and sometimes purposive sampling is used (selecting cases that illustrate some specific feature)

GATHERING DATA

To get qualitative data, the best methods are semi-structured, open-ended questions, observations, focus group discussions or diaries (diaries help overcome issues of social desirability bias and demand characteristics)

ANALYSING DATA

1. Organising the data – recording speech and preparing a transcript.
2. Getting to know the data – re-reading the transcripts several times
3. Code the data

Ways of analysing data qualitatively:

- *INTERPRETIVE PHENOMENOLOGICAL ANALYSIS* – exploring how participants make sense of the world and interpreting their meanings
- *GROUNDED THEORY* – coding each line of text and any theories that emerge are grounded to the data
- *DISCOURSE ANALYSIS* – analysis of speech or written discourse to investigate the social context and the interaction between speakers.
- *CONTENT ANALYSIS* - identifying important categories from a sub sample of responses. The researchers then work through the written data, counting the number of occurrences of each of the categories to produce quantitative data or finding similar themes which would keep the data still in a qualitative format
- *THEMATIC ANALYSIS* - reading and rereading (familiarisation) written transcripts carefully. Coding would involve looking for words which cropped up repeatedly in transcripts. These could then be combined to reduce the number of codes into three or four themes. The data would stay in qualitative format and would not be reduced to numbers.

All these above approaches to analysing are:

- **inductive** → theory develops from the data during analysis and researchers must avoid having prior assumptions.
- **They have reflexivity** → the researcher reflects on how the researcher and the research activity shape the outcome. They acknowledge the role of subjectivity.

EVALUATING QUALITATIVE DATA:

Establishing trustworthiness by using an external audit – this involves a check of the documentation by an external party

Transferability – can the research be transferred to understand similar situations?

Negative case analysis – exploring cases that do not fit the emerging concepts

Reflexivity

It is hard to judge qualitative data using validity and reliability as it is based on the participant's subjective experience so is high in external validity but low in internal validity and the research is only the viewpoint and interpretation from the certain researcher.

8. REPORTING PSYCHOLOGICAL INVESTIGATIONS

SECTIONS OF A REPORT:

1. Title	Tells the reader what the report is about
2. Abstract	Provides a brief summary of the study
3. Introduction	Introduce the background and rationale
4. Method	Describe how the study was done
5. Results	Summarise findings
6. Discussion	Discuss findings and their implications
7. References	Inform the reader about sources of information
8. Appendices	Can be used for detailed information not in the report

1. TITLE

It will determine who reads the full report. It should be concise but informative.

2. ABSTRACT

A brief summary of the report. It should be self-contained, clear and concise and detail the research question, method used, findings and conclusion

3. INTRODUCTION

Introduce the background to the study, the reasoning behind it and the predictions derived from it. It places the study in context

Introduce the study and explain the ideas behind it then speak about specific research predictions

4. METHOD

Describes how the study was conducted.

It should have enough material for the study to be replicated; this ensures later reliability and allows us to see if the study has internal and external validity or whether there are confounding variables, demand characteristics, sampling errors…

It includes sub-sections such as;

- Design – outline the method used and the design (repeated measures, independent groups, matched pairs?), the number of groups/conditions and the variables.
- Participants – describe features of the participant sample (age, race, gender…) and how they were selected to allow people to see if there was population validity
- Apparatus
- Procedure – how the study was conducted; how participants were allocated, instructions, how data was collected etc. and any other detail that might impact on internal validity.

5. RESULTS

Report the findings as:

(a) Descriptive statistics – e.g. measures of central tendency and dispersion displayed in tables or graphs
(b) Inferential statistics – analysing the data by accepting or rejecting the null hypothesis

6. DISCUSSION

Summarise the findings and explore the best explanation of the findings, usually in relation to whether you accepted or rejected the null hypothesis.

It may also consider other factors such as the methodology and the progress of scientific knowledge that has been gained from the study

Here researchers are expected to consider possible practical applications and implications of their research

7. REFERENCES

All cited evidence in alphabetical order to give an evidence trail

Qualitative reports

- These will be different to quantitative reports, particularly in the introduction, method and results section.
- It does not have specific hypotheses but rather has aims.
- It does not use numbers so the results cannot include descriptive or inferential statistics so instead the results section will report on the analytic themes using supporting quotations.

IF THE EXAM QUESTION ASKS YOU TO DESIGN YOUR OWN EXPERIMENT, YOU MUST THINK ABOUT:

1. The null and alternate hypothesis and whether they will be directional or non-directional
2. Choice of method :
    a. Experimental (lab, field, natural? – which design - repeated measures, independent groups, matched pairs?)
    b. Correlational
    c. Observation (naturalistic or controlled? Participant or non-participant? Overt or covert?)
3. How will you gather data?
    a. Interview (structured, semi-structured or unstructured?)
    b. Questionnaire (open or closed questions?)
    c. Case study
4. Identify the target population and how they will be sampled (random, opportunity or volunteer?)
5. Are there any ethical issues?
6. Will you use a pilot study?
7. What statistical test will you use?
8. When expectations do you have for the results?