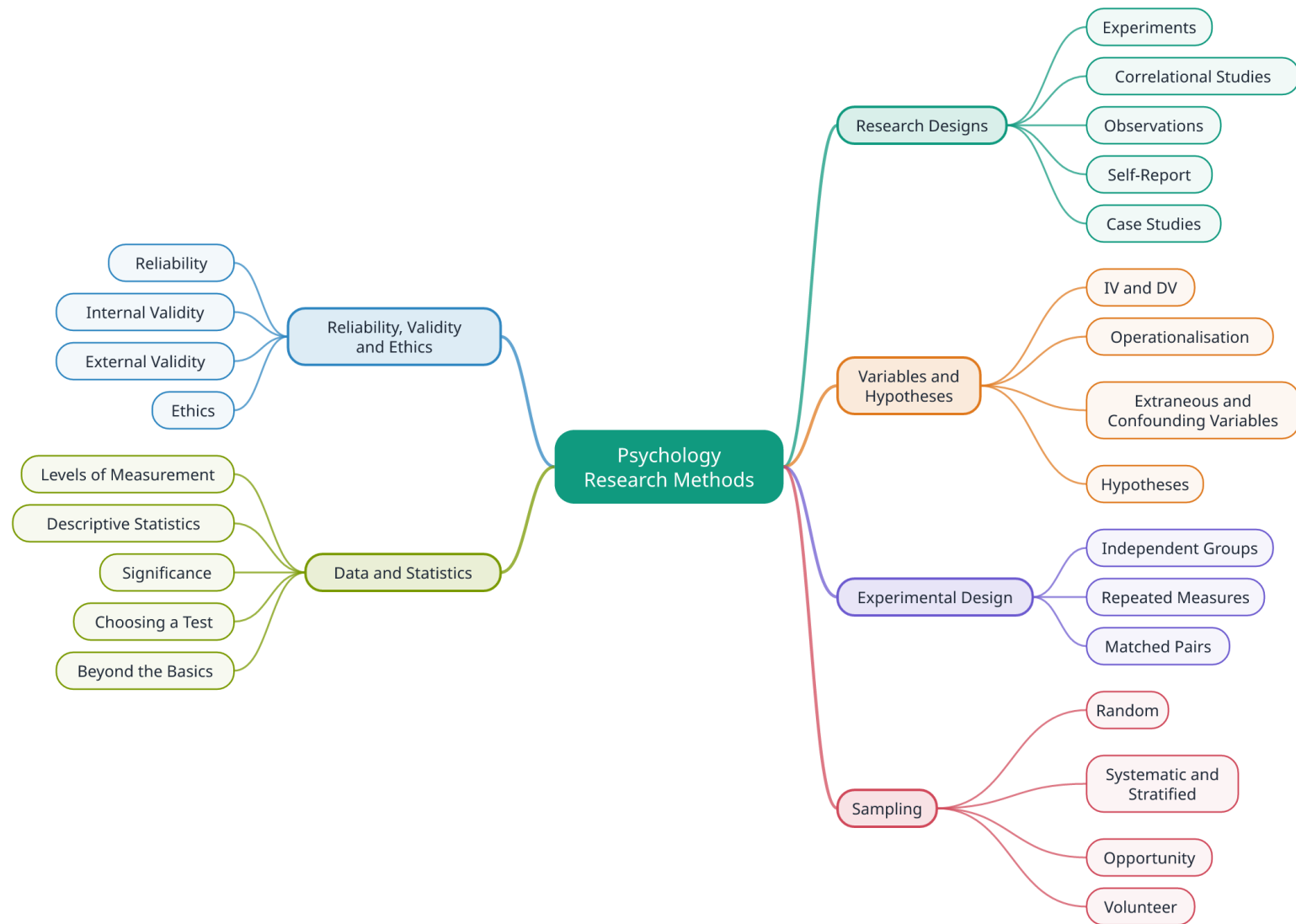


Psychology Research Methods Mind Map

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Psychology Research Methods mind map explained

Research Designs

The main ways psychologists collect data.

Experiments

The researcher manipulates an independent variable and measures its effect. Laboratory, field, natural and quasi-experiments differ in how much control the researcher has.

Correlational Studies

Measure the relationship between two variables without manipulating either. A correlation does not show cause and effect.

Observations

Naturalistic or controlled, covert or overt, participant or non-participant. Behaviour categories and time or event sampling make them more systematic.

Self-Report

Questionnaires and interviews, from structured to unstructured. They reach thoughts and feelings, but answers can be affected by social desirability bias.

Case Studies

In-depth studies of one person or a small group. Rich detail, but hard to generalise.

Variables and Hypotheses

Defining exactly what is being tested.

IV and DV

The independent variable is changed by the researcher; the dependent variable is measured.

Operationalisation

Defining variables so they can be measured, for example memory as the number of words recalled out of twenty.

Extraneous and Confounding Variables

Extraneous variables could affect the dependent variable. If one varies systematically with the independent variable, it becomes confounding and threatens the conclusions.

Hypotheses

The null hypothesis predicts no difference or relationship. The alternative hypothesis predicts one: directional (one-tailed) or non-directional (two-tailed).

Experimental Design

How participants are allocated to conditions.

Independent Groups

Different participants in each condition. No order effects, but participant variables can differ between groups. Random allocation helps.

Repeated Measures

The same participants take part in every condition. Controls participant variables, but risks order effects such as practice and fatigue. Counterbalancing reduces these.

Matched Pairs

Participants are paired on key characteristics, then one of each pair goes into each condition. Fewer participant differences, but matching takes time.

Sampling

Choosing participants from the target population.

Random

Every member of the population has an equal chance of selection. Unbiased in principle, but hard to achieve.

Systematic and Stratified

Systematic: every nth person from a list. Stratified: subgroups sampled in proportion to their size in the population, so the sample is more representative.

Opportunity

Whoever is available, often students. Quick and easy, but likely to be unrepresentative.

Volunteer

People who choose to take part, for example by answering an advert. Easy, but volunteers may differ from everyone else.

Reliability, Validity and Ethics

Whether results are consistent, whether they measure what they claim to, and whether the research is ethical.

Reliability

Consistency. Test-retest reliability checks results over time; inter-rater reliability checks agreement between observers.

Internal Validity

Whether the independent variable really caused the change. Threatened by demand characteristics and investigator effects; improved by standardised procedures, randomisation and single or double-blind designs.

External Validity

Whether results generalise to other settings (ecological validity), people (population validity) and times.

Ethics

The BPS Code of Human Research Ethics: informed consent, avoiding unnecessary deception, protection from harm, confidentiality, the right to withdraw and debriefing.

Data and Statistics

Describing the data, then testing whether a result is significant.

Levels of Measurement

Nominal (categories), ordinal (ranked data) and interval or ratio (equal units on a scale).

Descriptive Statistics

Measures of central tendency (mean, median, mode) and of spread (range, standard deviation), plus graphs.

Significance

Psychology usually uses $p < .05$: a less than 5% probability of the result if the null hypothesis were true. A Type I error is a false positive; a Type II error is a false negative.

Choosing a Test

Ask: difference or correlation? Independent or related design? What level of data?

- Nominal: chi-square (independent), sign test (related)
- Ordinal: Mann-Whitney U (independent), Wilcoxon (related), Spearman's rho (correlation)
- Interval, normally distributed: independent t-test, related t-test, Pearson's r (correlation)

Beyond the Basics

University courses add ANOVA for more than two conditions, regression to predict one variable from others, and effect sizes and confidence intervals alongside p values.

How to revise with this mind map

1. Learn to spot the design. For any study described in a question, name the method, the independent and dependent variables, the experimental design and the sampling method.
2. Pair every term with its strength and weakness. Exam answers on research methods almost always need both.
3. Practise choosing statistical tests with the three questions: difference or correlation, independent or related, and the level of data. Run through practice scenarios until it is automatic.
4. Use real studies. Link each concept to a study you know, such as a lab experiment with low ecological validity, so your evaluation is specific rather than generic.
5. Make it yours. Build your own research methods map in Mindmapi from your lecture notes, and ask the AI about any branch you are unsure of. The answer is saved into that branch's notes for next time.