Research methods and the research proposal

IB DP Psychology HL research methods, Paper 2 and the research proposal

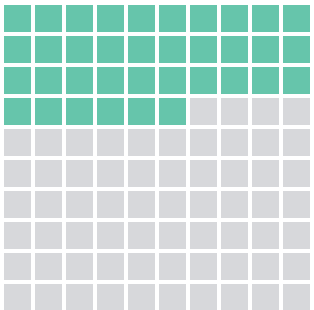
Research methods, class practicals and the research proposal

- compare the six research methods and the data each produces;
- design an **experiment** with variables, hypotheses, a design and a sample;
- explain sampling techniques and their problems;

Research methods, class practicals and the research proposal (2)

- judge a study's quality: bias, **generalisability**, **credibility** and **transferability**;
- apply ethical rules to research with people;
- answer Paper 2 and plan the research proposal.

Figure: Research methods, class practicals and the research proposal



replicated: about 36

not replicated

100 published studies repeated in 2015; small samples and flexible analyses were common in the failures

- About a third of 100 studies replicated.
- Match each part of the diagram to the text.

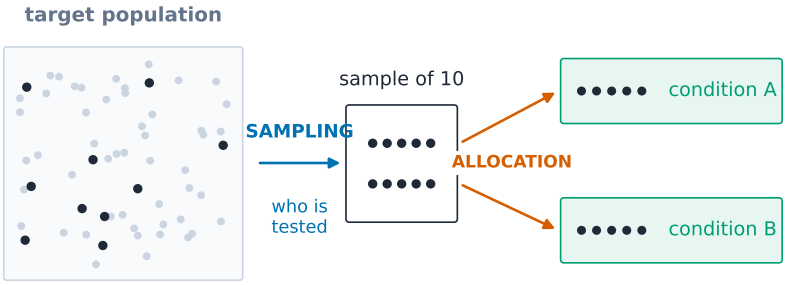
Six research methods

- *Six methods placed by control and by kind of data; the four ringed ones are used in **class practicals***
- **Quantitative data** are numbers; **qualitative data** are words, pictures or descriptions.
- Experiments and questionnaires mostly produce **quantitative data**; interviews mostly **qualitative data**.

Experiments

- **Research hypothesis** : students who learn 20 words in silence will recall more words than students who learn them with music playing.
- **Null hypothesis** : there will be no difference in recall, or any difference will be due to chance.

Figure: Experiments



Random sampling makes the sample representative; random allocation makes the groups comparable.

- A target population with ten people chosen into a sample, then split by random allocation into condition A and condition B
- Match each part of the diagram to the text.

Sampling

- Purposive and **snowball sampling** are common for interviews, when the researcher needs people with a special experience.
- Check the conditions before using the result.

Questionnaires, interviews and observations

- A **questionnaire** can use closed questions (yes/no, or a **Likert scale** from 1 "strongly disagree" to 5 "strongly agree") or open questions.
- Closed answers are easy to count; open answers give reasons.
- People may give the answer that sounds good: **social desirability bias** .
- Anonymous questionnaires reduce it.

Judging quality

- A study is only as good as its weakest point.
- Quantitative research is judged by whether its results are free of bias and apply beyond the sample; qualitative research is judged by whether its findings truly reflect what participants meant and whether they may apply in other settings.
- In the replication project of 2015, many of the studies that failed to repeat had small samples and flexible analyses: problems of **generalisability** and of **researcher bias** in deciding how to analyse the data.
- Registering the plan before collecting data is one fix.

Ethics

- Every study must follow ethical rules.
- The main ones are **informed consent** (people know what they agree to; parents consent for children under 16), the **right to withdraw** at any time, no **deception** unless it is necessary and harmless, **debriefing** (telling participants the true aim afterwards), **protection from harm** and **confidentiality** (no names in the report).
- Responsibility, one of the six concepts, asks you to apply these rules to a particular study.

Paper 2

- **Section A** asks four questions about one class practical: describe what you did (4 marks), explain a concept in relation to it (4 marks), compare it with another method (6 marks) and design a study with a different method on the same topic (6 marks).
- **Worked example.** *Describe how you used an **interview** or **focus group** in your class practical.* (4 marks)
- > Our aim was to find out how IB students experience stress before mock > exams.
- We used **purposive sampling** to choose four DP2 students who had > just taken mocks.

Figure: Paper 2



- Paper 2: 20 marks on your practical, 15 on an unseen study.
- Match each part of the diagram to the text.

The research proposal (internal assessment)

- The **internal assessment** is a research proposal of 24 marks.
- You choose a topic and a **population of interest** (for example, international students in their first year in China), and plan a study with one of the four class-practical methods.
- You argue for every choice, but you do not collect data.
- *The four parts of the research proposal*

Sources for this lesson

- International Baccalaureate, *Psychology guide* (first assessment 2027), Paper 2 and the **internal assessment**.
- Open Science Collaboration, "Estimating the reproducibility of psychological science", *Science* 349 (2015).
- British Psychological Society, *Code of Human Research Ethics* (2021).
- H. Coolican, *Research Methods and Statistics in Psychology* (7th edition, 2019).

Common errors

- Writing a hypothesis that does not name the independent and dependent variables in measurable terms.
- Confusing **random sampling** (who is chosen from the population) with random allocation (which condition each participant joins).
- Calling an opportunity sample "random".

Common errors (2)

- Saying a correlation shows that one variable causes another.
- Listing ethical rules without explaining how they apply to the study in the question.
- Planning an **internal assessment** study that you would need to carry out; the research proposal is planned, not done.

Key terms

- **Independent variable (IV)**: the variable the researcher changes.
- **Dependent variable (DV)**: the variable the researcher measures.
- **Confounding variable**: a variable other than the IV that may affect the DV.

Key terms (2)

- **Counterbalancing**: changing the order of conditions between participants to cancel out order effects.
- **Generalisability**: how far results apply beyond the sample.
- **Triangulation**: using more than one method, researcher or source to check a finding.
- **Informed consent**: agreeing to take part after being told what the study involves.

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Check yourself

- 1.
- In 2015, what share of 100 repeated psychology studies found a significant result again?
- Give one reason. 2.
- A study tests whether music affects memory for a word list.