Longitudinal studies

Lesson 2.1.7 | AS research methodology

Core ideas

Longitudinal studies follow the same participants or groups across more than one time point.

They are useful for studying development, change, stability and long-term effects.

Repeated measurement can show patterns that a single snapshot study would miss.

Attrition happens when participants drop out, which can make later data less representative.

Repeated testing may change behaviour because participants become familiar with the task.

Evaluation should consider depth over time, cost, time, ethics, sample loss and whether findings still apply later.

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Key terms

Longitudinal study: A study that collects data over an extended period of time.

Repeated measurement: Measuring the same participants or variables more than once.

Attrition: Loss of participants from a study over time.

Development: Change in behaviour, ability or experience over time.

Snapshot study: A study collecting data at one point in time.

Cohort effect: An influence linked to the particular generation or group studied.

Follow-up: A later stage of data collection after the first measurement.

Representativeness: How well a sample reflects the wider group it is meant to show.

Further detail and evidence

A longitudinal design repeatedly follows the same participants or unit. It can form part of an experiment, case study or observational study; "longitudinal" does not itself specify whether a variable was manipulated. State interval, task, scoring and re-contact arrangements.

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Applying the ideas

Hölzel obtained structural scans before and after an eight-week course and used a comparison group. Saavedra and Silverman followed treatment with six- and twelve-month checks. Repeated measurement distinguishes immediate change from evidence that gains persist.

Worked example: Choose a longitudinal design for studying exam anxiety, and describe how data could be collected. A researcher could measure the same students' exam anxiety at the start of the course, before mock exams and before final exams. They could use the same anxiety questionnaire at each follow-up so scores can be compared across time. This would show whether anxiety changes as exams get closer, although some students might drop out before the final measurement.

Worked example: Assess one strength and one limitation of longitudinal studies. A strength is that longitudinal studies can show how behaviour changes over time, which a one-off snapshot study may miss. A limitation is attrition because participants may drop out, leaving a smaller or less representative sample. This means longitudinal evidence can be rich, but it can also be expensive, slow and affected by sample loss.

Evaluation and connections

Attrition threatens interpretation if dropouts differ from retained participants. Practice, changing instruments, life events and historical change can also influence results. Use suitable equivalent tasks and stable procedures where appropriate. A long follow-up can improve understanding while increasing cost and privacy burdens.