Quantitative and qualitative data

Lesson 2.3.1 | AS research methodology

Core ideas

Quantitative data are numerical, such as scores, counts, times, percentages or ratings.

Qualitative data are descriptive, such as interview comments, written explanations or observation notes.

Quantitative data are useful for comparisons, summaries, graphs and statistical analysis.

Qualitative data can give richer detail about meanings, experiences and reasons for behaviour.

Some studies collect both types of data to balance measurement with depth.

Evaluation should consider objectivity, detail, ease of analysis, interpretation and whether the data answer the research question.

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Key terms

Quantitative data: Numerical data such as scores, counts or times.

Qualitative data: Descriptive data such as words, explanations or observations.

Numerical score: A number used to record a response or performance.

Descriptive detail: Information that explains behaviour or experience in words.

Rating scale: A scale that turns a judgement into a number.

Statistical analysis: Using numerical methods to summarise or compare data.

Theme: A repeated idea or pattern found in qualitative data.

Interpretation: Making meaning from data after it is collected.

Further detail and evidence

Quantitative and qualitative describe the form of data, not whether it is true or unbiased. A numerical distress rating remains subjective. Qualitative observation can use systematic procedures. Converting comments into counts loses some context while allowing comparisons.

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Applying the ideas

Piliavin recorded response times and counts, alongside passenger comments. Saavedra and Silverman combined a 0-8 distress score with descriptions and observation. The methods complement one another: an average can reveal a pattern while detailed accounts suggest why or how it occurred.

Worked example: Classify two pieces of data from a memory study as quantitative or qualitative. A score of 16 words recalled out of 20 is quantitative because it is numerical and can be compared across participants. A participant's comment that the word list felt confusing because the words were unrelated is qualitative because it gives descriptive detail in words. The two types of data answer different questions about performance and experience.

Worked example: Assess one strength of using qualitative data alongside quantitative data. Using qualitative data alongside quantitative data can add depth to numerical results. For example, test scores may show that one group performed worse, while interview comments may suggest they felt distracted or anxious. This combination can make interpretation richer, although qualitative data can take longer to analyse and may be more subjective.

Evaluation and connections

Numerical data are often economical to summarise, but can hide variation or meaning. Qualitative material provides detail but takes time and involves interpretation. Mixed data do not automatically guarantee validity; explain how each measure answers the actual research question.