

Quantitative Research

Simply Explained



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What is Quantitative Research?

1

John Creswell's Definition

"An inquiry into a social or human problem, based on testing a theory composed of variables, measured with numbers, and analyzed with statistical procedures, in order to determine whether the predictive generalizations of the theory hold true." (Creswell, 2014, p.4)



2

Leavy Patricia's Definition

Quantitative research "values breadth, statistical descriptions, and generalizability. Quantitative approaches to research center on achieving objectivity, control, and precise measurement [...] rely on deductive designs aimed at refuting or building evidence in favor of specific theories and hypotheses." (Patricia, 2022, p. 99)

Philosophical Roots

Newman & Benz (1998)

Positivism

Objective Reality Exists



There is a single, objective reality that can be measured and quantified.

Empirical Observation



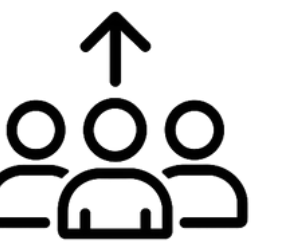
Knowledge is gained through systematic observation and measurement of the physical world.

Falsifiability



Scientific claims must be testable and potentially falsifiable.

Generalizability



The goal is to produce findings that can be generalized from a sample to a broader population.

Quantitative Research Steps

(Allen et al., 2009)

1

Isolate a Problem

Identify a research problem based on theory.

2

Select a Design

Choose between survey, experimental, or content analysis.

3

Operationalize Variables

Clearly define and measure key concepts.

4

Generate a Sample

Select a representative sample of the target population.

5

Collect Data

Use reliable methods to gather information.

6

Analyze Data

Use statistical methods to test hypotheses.

7

Write Results

Communicate findings clearly and accurately.

Quantitative Research Approaches

(Kothari, 2004)

1

Inferential Approach

- Uses sample data to infer characteristics or relationships in a larger population.
- Often involves surveys or observational studies to make generalizations.

2

Experimental Approach

- Involves manipulating variables in a controlled setting to observe their effects on other variables.
- Provides strong causal evidence but often lacks real-world context.

3

Simulation Approach

- Creates artificial environments to study the dynamic behavior of systems.
- Useful for modeling complex processes and predicting future scenarios.

Core Aspects of quantitative research

1

Numerical Data Collection

- Gathering structured, standardized numerical data through surveys, experiments, or natural observations.



2

Objectivity and Precision

- Prioritizing control, accuracy, and generalizability to establish cause-and-effect relationships.



3

Deductive Reasoning

- Testing theories and hypotheses with empirical evidence.



4

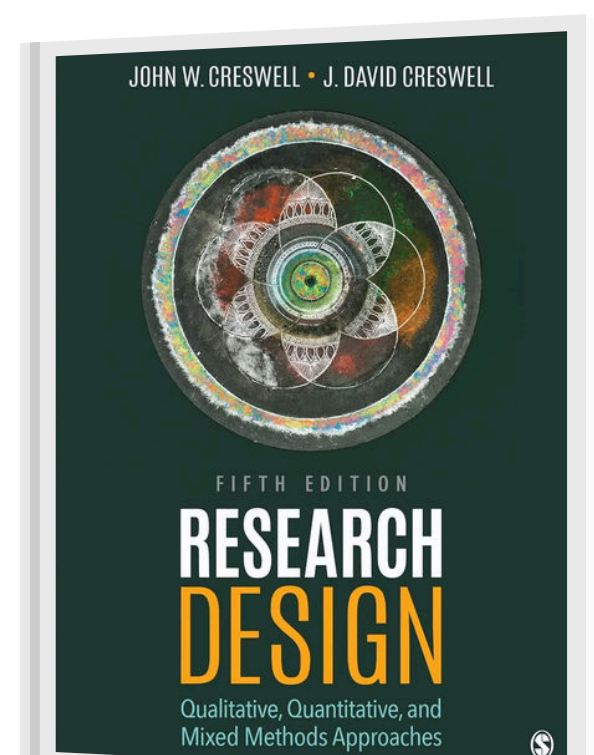
Statistical Analysis

- Using statistical methods to identify patterns, make predictions, and draw inferences.

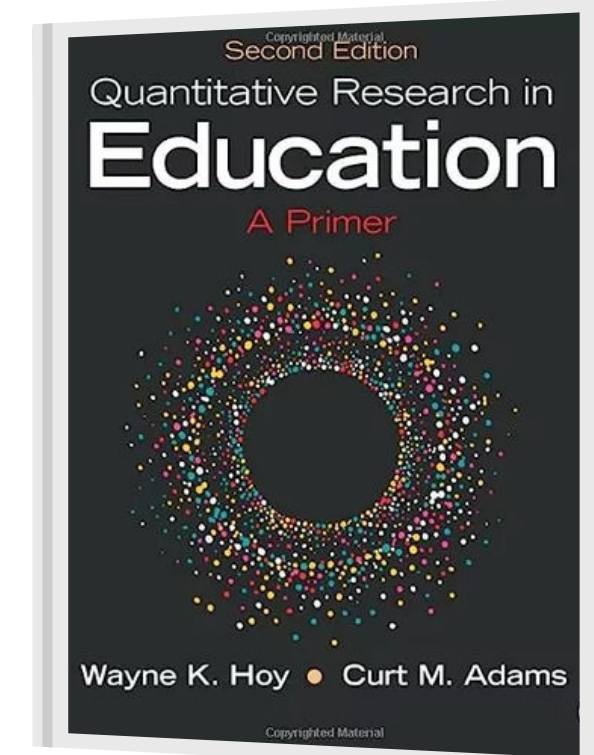


Key Books on Quantitative Research

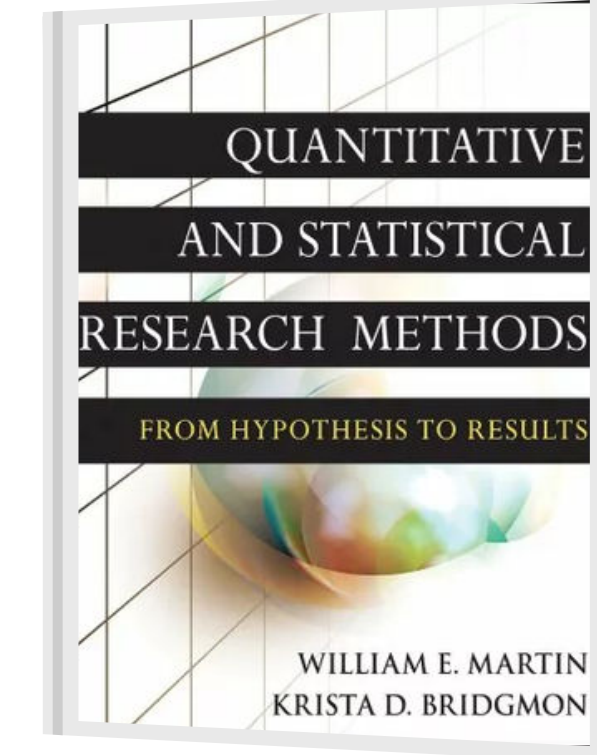
Research Design, by John Creswell



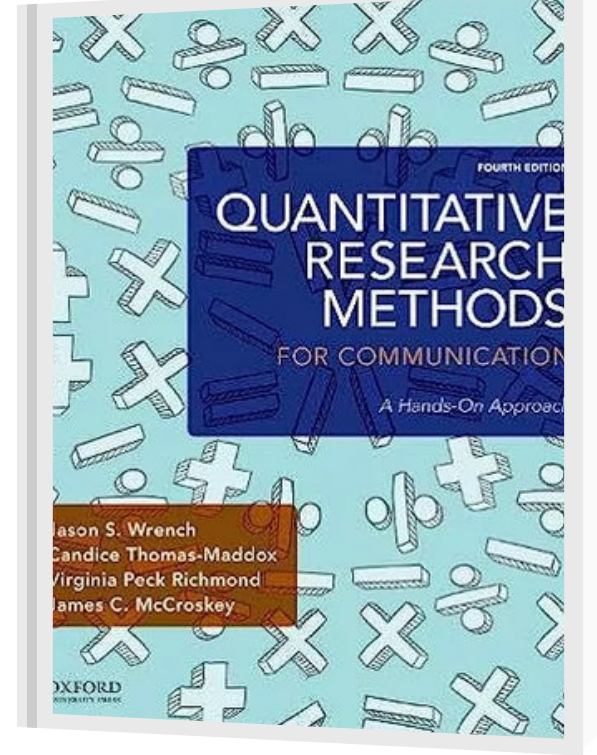
Quantitative Research in Education



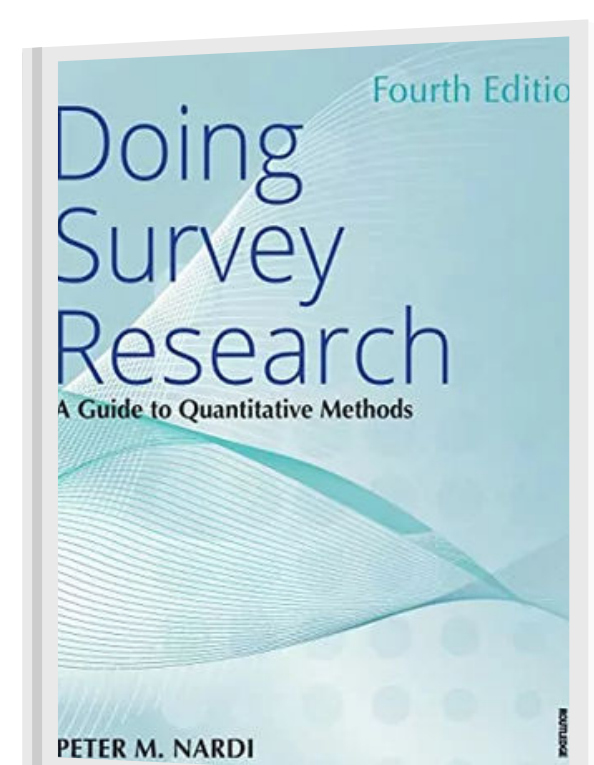
Quantitative & Statistical Research Methods



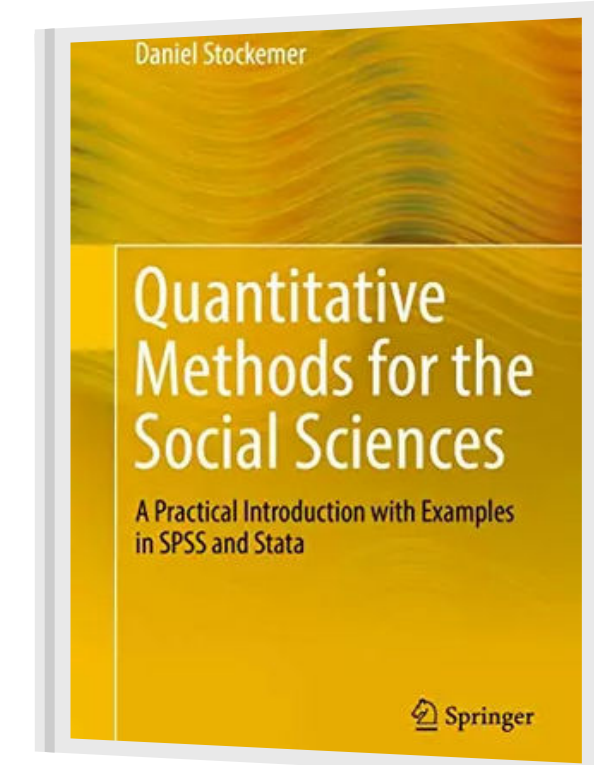
Quantitative Research Methods for Communication



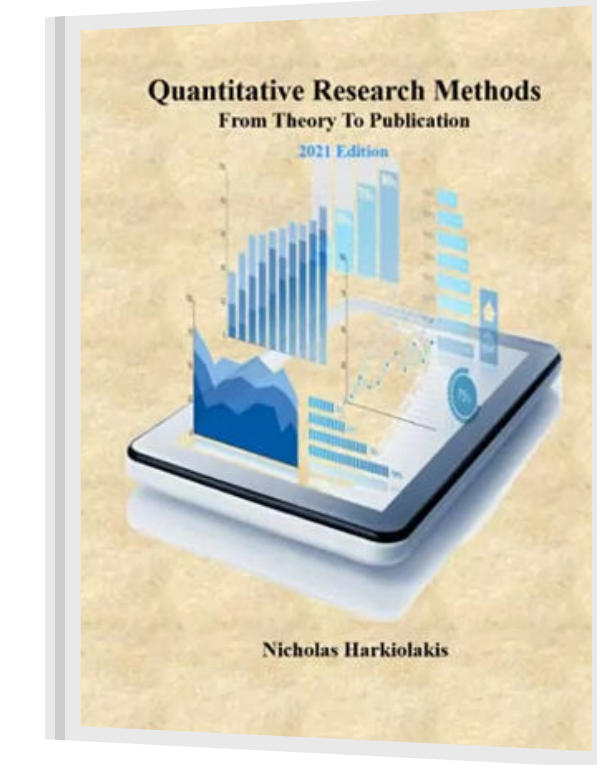
Doing Survey Research



Quantitative Methods for the Social Sciences



Quantitative Research Methods



Quantitative Research for the Qualitative Researcher



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