

Social Research Methods: Qualitative and Quantitative Approaches

Eighth Edition



Chapter 7

Qualitative and
Quantitative
Measurement

Learning Objectives

- 7.1 Explain the importance of measurement.
- 7.2 Differentiate between quantitative and qualitative approaches to measurement.
- 7.3 Describe the two major processes in measurement.
- 7.4 Describe the principle of reliability and how to improve it.
- 7.5 Distinguish among the four levels of measurement.
- 7.6 Explain how to create scales and indexes for research.

7.1 The Need for Measurement

Objective: Explain the importance of measurement.

- Qualitative measurement has a special terminology and set of techniques because the goal is to capture details and express what is found in numbers.
- In qualitative studies, we measure by classifying statements, events, actions, or people into categories.
- Poor-quality measures can destroy a study.

7.2 Quantitative and Qualitative Measurement

Objective: Differentiate between quantitative and qualitative approaches to measurement.

- Three Differences between Quantitative and Qualitative Measurements

	Quantitative	Qualitative
Timing	Before data collection	During data collection
Data	Numbers	Words, actions, symbols, visual images
Connecting concepts with data	Connect before data collection	Connect before, during, and after data collection

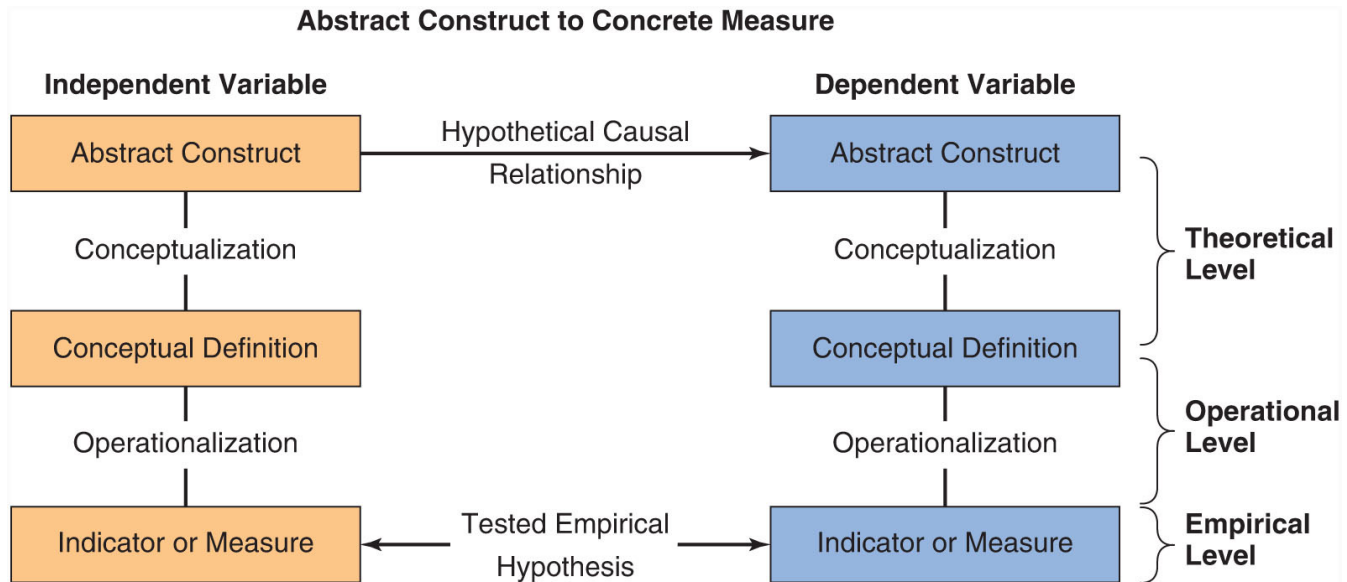
7.3 Measurement Process (1 of 4)

Objective: Describe the two major processes in measurement.

- Conceptualization—taking an abstract concept and refining it by giving it a conceptual or theoretical definition
 - Conceptual definition—a statement of the idea in specific words and theoretical terms
- Operationalization—links a conceptual definition to a set of measurement techniques or procedures.
 - Operational definition—a definition in terms of operations and actions

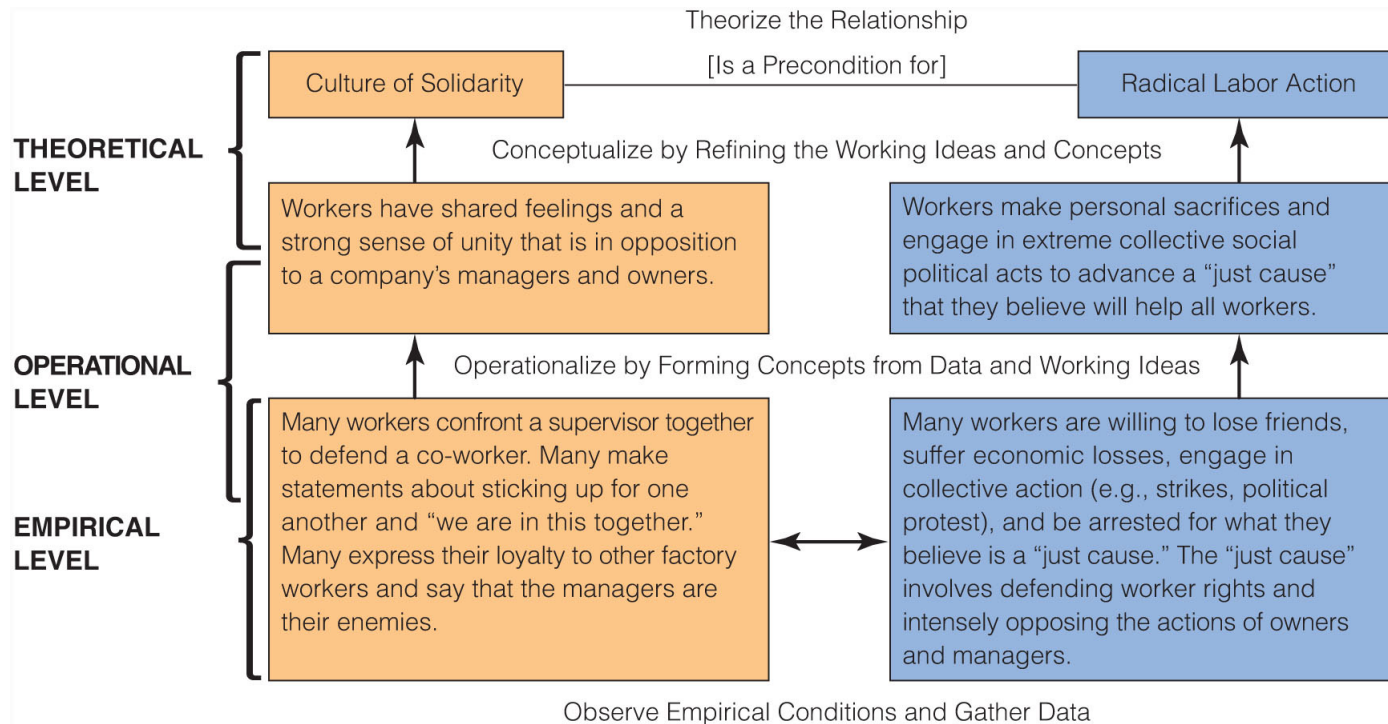
7.3 Measurement Process (2 of 4)

Figure 7.1 Conceptualization and Operationalization



7.3 Measurement Process (3 of 4)

Figure 7.3 Example of the Inductive Measurement Process for the Proposition: Radical Labor Action Is Likely to Occur Where a Culture of Solidarity Has Been Created



7.3 Measurement Process (4 of 4)

- Qualitative Measurement
 - Researchers refine rudimentary working ideas during data collection and analysis.
 - Conceptualization becomes a process of forming coherent theoretical definitions as researchers make sense of or organize their ideas around their data.
 - Operationalization precedes conceptualization and gives deductive measurement.
 - Casing, also known as creating a case, brings the data and theory together. It can occur at any phase of the research process.

7.4 Reliability and Validity (1 of 7)

Objective: Describe the principle of reliability and how to improve it.

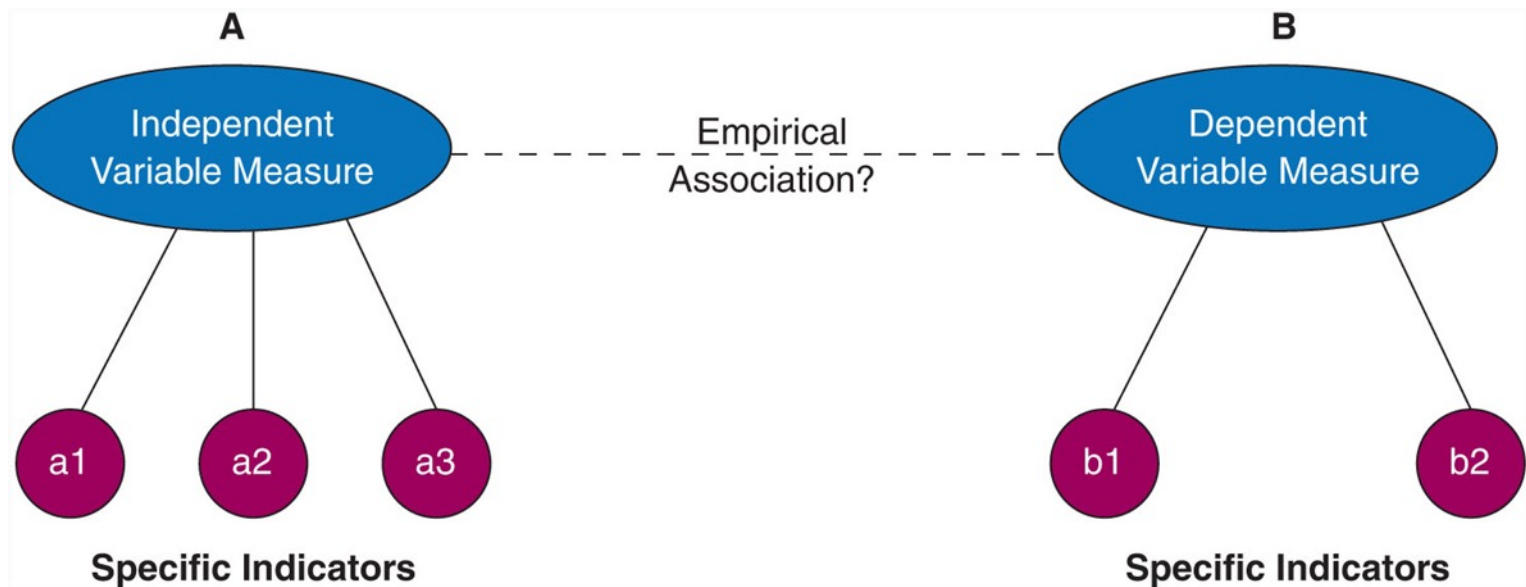
- Reliability—dependability or consistency
 - The same thing is repeated or recurs under identical circumstances.
- Validity suggests truthfulness
 - How well the measurement fits actual reality
- All researchers want reliable and valid measurement, but qualitative and quantitative researchers use these concepts differently.

7.4 Reliability and Validity (2 of 7)

- Reliability and Validity in Quantitative Research
 - Measurement reliability means that the numerical results produced by an indicator do not vary because of the characteristics of the measurement process or measurement instrument.
 - Three Types of Reliability
 - Stability reliability
 - Representative reliability
 - Equivalence reliability

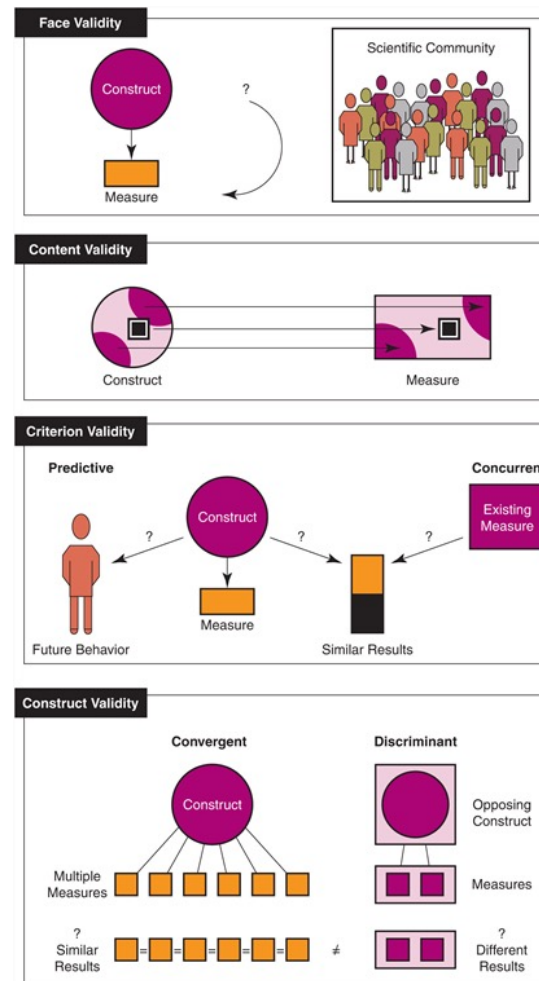
7.4 Reliability and Validity (3 of 7)

Figure 7.4 Measurement Using Multiple Indicators



7.4 Reliability and Validity (4 of 7)

Figure 7.5 Types of Validity



7.4 Reliability and Validity (5 of 7)

- Reliability and Validity in Qualitative Research

- Reliability

Qualitative researchers often study processes that are unstable over time.

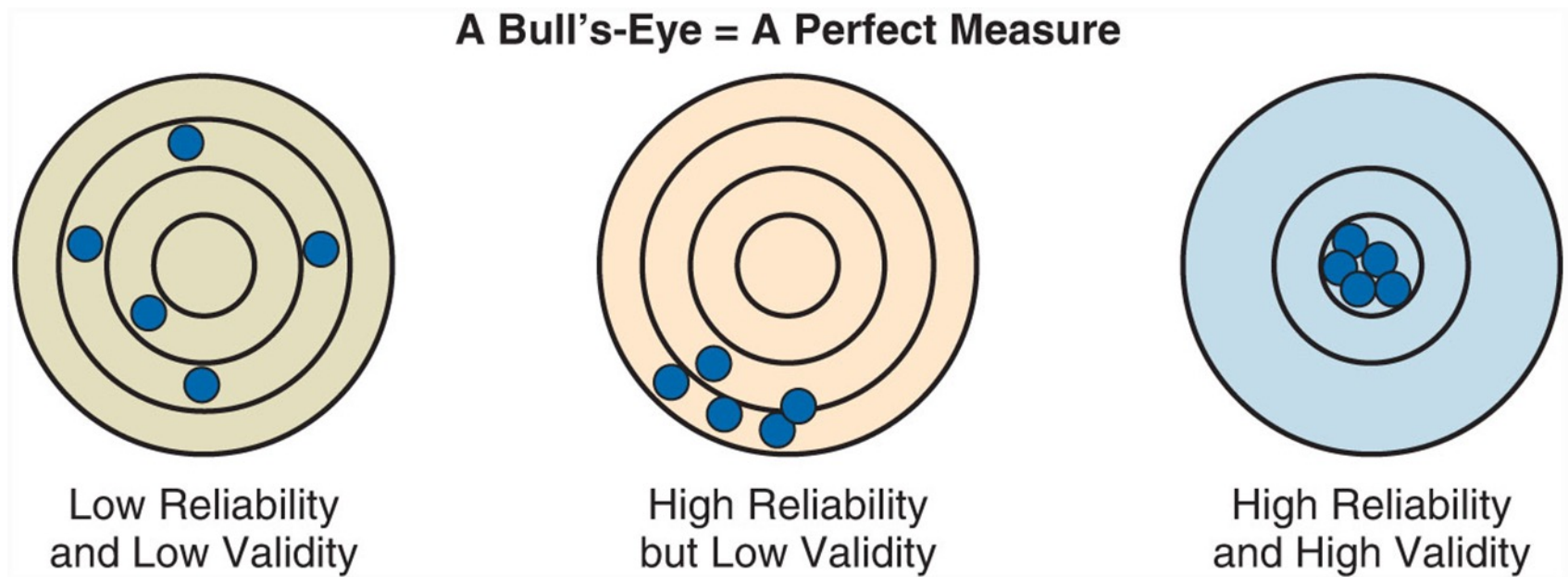
Researchers use various techniques to document observations consistently.

- Validity

Qualitative researchers attempt to achieve authenticity (fair, honest and balanced accounts) rather than a single version of “Truth.”

7.4 Reliability and Validity (6 of 7)

Figure 7.6 Illustration of Relationship between Reliability and Validity



7.4 Reliability and Validity (7 of 7)

- Other Uses of the Words **Reliable** and **Valid**

- Internal Validity

The researcher has not made errors internal to design of the project that might produce false conclusions.

- External Validity

Can the researcher generalize a result found in a specific setting beyond that situation?

- Statistical Validity

The researcher used the proper statistical procedure for that particular purpose and has met the procedure's mathematical requirements.

7.5 A Guide to Quantitative Measurement (1 of 3)

Objective: Distinguish among four levels of measurement.

- Continuous Variables
 - Contain a large number of values and attributes that flow along a continuum.
 - Examples include: age, income, crime rate, amount of schooling
- Discrete Variables
 - Have a relatively fixed set of separate values or variable attributes
 - Examples include: gender, religion, marital status

7.5 A Guide to Quantitative Measurement (2 of 3)

- Four Levels of Measurement

Example Box 7.2 Examples of Four Levels of Measurement

Variable (Level Of Measurement)	How Variable Is Measured
Religion (nominal)	Different religious denominations (Jewish, Catholic, Lutheran, Baptist) are not ranked but are only different (unless one belief is conceptualized as closer to heaven).
Attendance (ordinal)	“How often do you attend religious services? (0) Never, (1) less than once a year, (3) several times a year, (4) about once a month, (5) two or three times a week, or (8) several times a week.” This might have been measured at a ratio level if the exact number of times a person attended were asked instead.
IQ score (interval)	Most intelligence tests are organized with 100 as average, middle, or normal. Scores higher or lower indicate distance from the average. Someone with a score of 115 has somewhat above average measured intelligence for people who took the test, whereas 90 is slightly below. Scores of below 65 or above 140 are rare.
Age (ratio)	Age is measured by years. There is a true zero (birth). Note that a 40-year-old has lived twice as long as a 20-year-old.

7.5 A Guide to Quantitative Measurement (3 of 3)

- Principles of Good Measurement
 - Mutually Exclusive Attributes

An individual or a case will go into one and only one variable category.
 - Exhaustive Attributes

Every case has a place to go or fits into at least one of the variable categories.
 - Unidimensionality

A measure fits together or measures one single coherent construct.

7.6 Scales and Indexes (1 of 3)

Objective: Explain how to create scales and indexes for research.

- Index Construction

- Weighting

- Unless otherwise stated, assume all items in an index are unweighted.

- Standardization

- Involves selecting a base and dividing a raw measure by the base.

- Also called norming

7.6 Scales and Indexes (2 of 3)

- Ways to Deal with Missing Data
 - Eliminate all cases for which any information is missing.
 - Substitute the average score for cases in which data are present.
 - Insert data based on nonquantifiable information about the case.
 - Insert a random value.
 - Multiple imputation—an advanced statistical method to generate possible values from other variables

7.6 Scales and Indexes (3 of 3)

- Scales
 - Scales help in the conceptualization and operationalization processes.
 - Scaling measures the intensity, direction, level, or potency of a variable.
 - Commonly Used Scales
 - Likert Scale
 - Bogardus Social Distance
 - Semantic Differential
 - Guttman Scaling

Conclusion

- Central to measurement is how we refine and clarify our ideas into conceptual definitions and operationalize conceptual variables into specific measures.
- How we approach these processes depends on whether the study is quantitative or qualitative.
- Reliability refers to a measure's dependability.
- Validity refers to the truthfulness of the data the fit between the construct and the data.
- Create clear definitions for concepts, use multiple indicators, and weigh and standardize your data.

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