

POLS 5377 Scope & Method of Political Science

Week 3 Conducting Research

Operationalization & Measurement

Babbie E. (2016) *The Practice of Social Science*, Chapter 5 (pp. 123-145)

Key Question:

- * How to measure the reality which could be abstract and ambiguous?
- * What are the level of measurement?

Outline

- * Conceptualization
- * Operationalization
- * Level of measurement

Measuring Anything that Exists

- * Measurement
 - * careful, deliberate observations of the real world for the purpose of describing objects and events in terms of the attributes composing the variable.
- * Example
 - * Political Party Affiliation
 - * Age
 - * Satisfaction with College

Measuring Anything that Exists

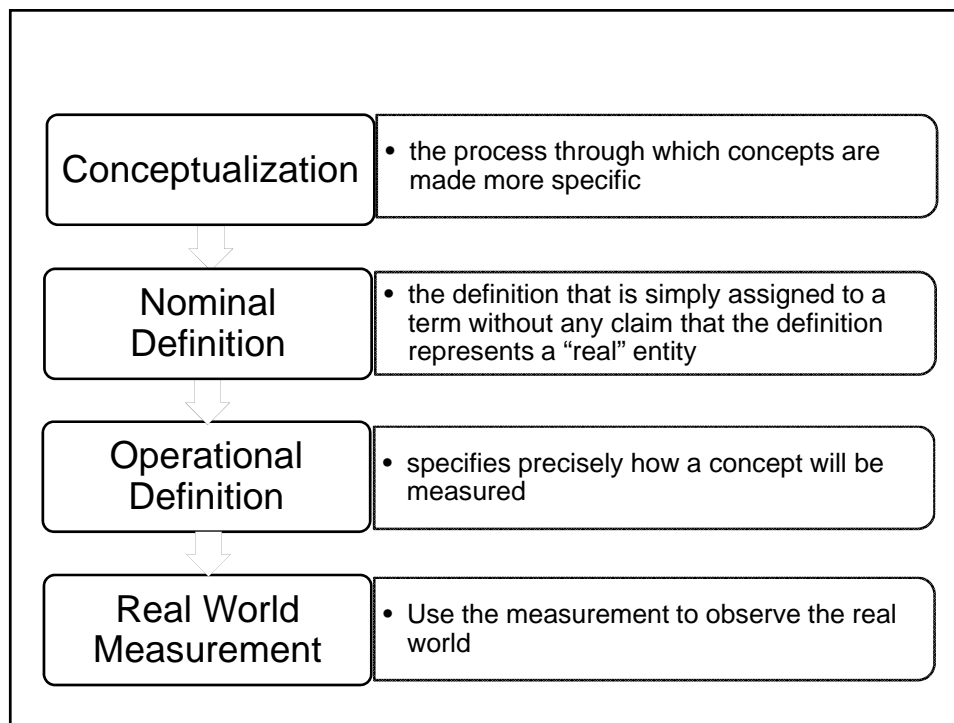
- * Concepts as constructs
 - * Concepts are constructs derived by mutual agreement from mental images
 - * Conceptions summarize collections of seemingly related observations and experiences
- * Directly observable: gender, age, height, eyes color
- * Indirectly observables, can be identified by the answer given by someone, such as religious affiliation, preference of color
- * Constructs: measured by a scale that is created by combining several direct or indirect observables, such as individual's attitude toward abortion; trust; loyalty

Conceptualization

- * Conceptualization
 - * The process through which we specify what we mean when we use particular terms in research
 - * We cannot meaningfully answer a question without a working agreement about the meaning of the outcome
 - * Conceptualization produces a specific, agreed-upon meaning for a concept for the purposes of research

Conceptualization

- * Indicator – an observation that we choose to consider as a reflection of a variable we wish to study.
 - * Public safety: violent crimes per 100,000 population
 - * Wealth of a country: GDP
- * Dimension – a specifiable aspect of a concept.
 - * Love: communication, trust, attraction
 - * Social Capital: trust (social trust & inter-racial trust); diversity of friendship...



A Study of Social Class

Conceptualization

- What are the different meanings and dimensions of the concept of “Social Class”?

Nominal Definition

- For this study, we will define “social class” as representing economic differences, specifically, income

Operational Definition

- Measure economic differences via “individuals’ annual income, before taxes, last year”

Real World Measurement

- Conduct a survey and ask individuals a question: What was your annual income, before taxes, last year?

Operationalization

- * Operationalization
 - * is the development of specific research procedures that will result in empirical observations representing those concepts in the real world.
- * Use variables and attributes
 - * An attribute is a characteristic or quality of something (ex: female, old, student).
 - * A variable is a logical set of attributes (ex: gender, age).
- * Every variable must have two important qualities.
 - * Attributes must be exhaustive.
 - * Attributes must be mutually exclusive

Level of Measurement

- * Nominal
 - * Ordinal
- } Categorical variables
- * Interval
 - * Ratio
- } Quantitative variables

Level of Measurement

- * Levels of Measurement – Nominal
 - * Variables whose attributes are merely different; they have only the characteristics of exhaustiveness and mutually exclusiveness.
 - * Examples: gender, religious affiliation, college major, hair color, birthplace, nationality

Level of Measurement

- * Levels of Measurement – Ordinal
 - * Variables with attributes we can logically rank in order. But we can't tell the actual distance between any two categories.
 - * Examples: socioeconomic status, level of conflict, prejudice, conservativeness, alienation

Level of Measurement

- * Levels of Measurement – Interval
 - * Variables whose attributes are rank-ordered and have equal distances between adjacent attributes.
 - * Examples: IQ score, Time of Day on a 12-hour clock, age

Level of Measurement

- * Levels of Measurement – Ratio
 - * Variables whose attributes meet the requirements of an interval measure and have a true zero point.
 - * Examples: Length of time, number of organizations, number of groups, number of As received in college, heights, weights

Level of Measurement

- * Implications of Levels of Measurement
 - * Determines the arithmetic operations that can be applied to a variable.

<i>Level of Measurement</i>	<i>Arithmetic Operations</i>	<i>How to Express the Fact That Jan Earns \$80,000 a Year and Andy Earns \$40,000</i>
Nominal	$= \neq$	Jan and Andy earn <i>different</i> amounts.
Ordinal	$> <$	Jan earns <i>more</i> than Andy.
Interval	$+ -$	Jan earns <i>\$40,000 more</i> than Andy.
Ratio	$\div \times$	Jan earns <i>twice</i> as much as Andy.

Level of Measurement

- * Importance of Levels of Measurement
 - * Analyses require minimum levels of measurement.
 - * Level of measurement affect the methods we can use for conducting statistical analysis

The End