Introduction and Syllabus

Research Methods Chapter 4
Conceptualization And Measurement
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Agenda
What do we need concepts for?
What does “measurement” mean in social sciences?
What do we mean by levels of measurement?

Three Steps
1. Develop measures
2. Collect data
3. Evaluate measures

How to develop measures
1. Use theory to identify concepts to answer your research question
2. Review previous research – identify variables
3. Constraints and opportunities
4. Think of analysis – what role will variables play?

Definition Concept:
“A mental image that summarizes a set of similar observations, feelings, or ideas”
Schutt (p.92)

Definition: Conceptualization
The process of specifying what we mean by a term.

Three Steps:
1. Define concepts
2. Identify variables corresponding to the concepts
3. Develop Measurement Procedures – Operationalization

Measurement Operations
Operation: A procedure for identifying or indicating the value of cases on a variable
Operationalization: The process of specifying the operations that will indicate the value of cases on a variable
(Schutt p.97)

Options for Measurement
Using available data
Constructing questions
Making observations
Or: Combining measurement operations

10 □ Defining Levels of Measurement
- Kind of mathematical relations between numbers assigned to a variable's values that correspond to empirical relations between cases
- Nominal, ordinal, interval, ratio

11 □ 1. Nominal level of measurement
- Categorical, qualitative or nominal
- Vary in kind or quality not in amount
- Attributes instead of values
- Mutually exclusive and exhaustive
- Example: parties: republican, democrat

12 □ 2. Ordinal Level of Measurement
- Order of the cases:
  - For example “greater than” and “less than”
- But the distance between any two cases cannot be determined
- Example: frequencies: once a year, once a month, once a week

13 □ 3. Interval Level of Measurement
- Fixed measurement units
- But no absolute or fixed zero point
- Values are mutually exclusive and exhaustive
- Scale
- Example: temperature in Fahrenheit

14 □ 4. Ratio Level of Measurement
- Fixed measuring units
- Absolute zero point!
- Highest Level!
- Example: age, income, etc.

15 □ Dichotomy
- Variable with only two values

16 □ What difference do levels of measurement make?
- Best tools for analysis used with ratio level of measurement
- Increases information
- Better to use age as continuous variable than as category

17 □ Exercise
Measure the concept “students’ satisfaction”
“Operationalize your variables”

Three Steps
1. Develop measures
2. Collect data
3. Evaluate measures

Evaluating research studies:
- How are concepts defined?
- What measures are used for these concepts?
- Are these measures valid? Are these measures reliable?

Concepts
- Deductive research: concepts translate theory into hypotheses
- Inductive research: to make sense of related observations

Evaluating Measures
- Validity
- Reliability

Defining Validity
- Extent to which a measure, indicator, or method of data collection has the quality of being sound or true as far as can be judged.
- A variable is valid if it actually measures the concept it is meant to measure

1. Face Validity
- Most common basis to establish validity
- “Common sense”
- Example: income for measuring social class
- “Do you agree or disagree that there ought to be a law against marriages between persons of different races?” measure for prejudice

2. Content Validity
- Covers full range of concept’s meaning
- Asking experts, review literature etc.

3. Criterion Validity
- Most stringent test of validity
- Highly correlated variables - substitute one for another

Criterion Validity (2)
- Concurrent validity: Self reporting drug abuse with lie detector
- Predictive validity: ability of a measure to predict scores in the future
4. Construct Validity
   - One measure relates to other measures consistent with theoretically derived hypotheses concerning the measured concepts.
   - Example: IQ test

Summary
   - Both criterion and construct validity compare scores on one measure to scores on other measures

Reliability
   - Repeated observations give similar results. Consistency of scores:
     1. Test-retest
     2. Inter-item
     3. Alternate-Forms
     4. Interobserver

Reliability and Validity
   - Reliability is prerequisite for measurement validity
   - Measurement validity is a necessary foundation for social research

Improving Validity and Reliability
   - Pilot studies
   - Work with people you want to study
   - Conduct cognitive interviews
   - Audiotape test interviews: record respondents while answering

Big Picture: Developing Measures
   1. Define concepts
   2. Identify variables corresponding to the concepts
   3. Develop Measurement Procedures

Qualitative Research
   - Recording data (interview or observation)
   - Using qualitative, open-ended questions
   - Process of defining concepts part of analysis

Constructing Questions
   - Single Questions
   - Multiple Question
   - Indexes and Scales

Single Questions
   - Fixed-response choices
(mutually exclusive and exhaustive)

- Or open-ended questions
  (idiosyncratic variation)

36 □ Multiple Questions:
Scales and Indexes
- Composite measure
- Based on sum or average
- Consistency in response to
different questions
- Reliability measure

37 □ Indexes and Scales as Measurement Procedure
- Composite measure
- Based on sum or average
- Consistency in response to
different questions
- Reliability measure
  => Improves accuracy of measure!

38 □ Examples for Indexes and Scales
- Good to measure “attitudes”
- For example, support for free speech, prejudice against certain
  religious/ethnic/migrants groups
- Problem: do we still measure same concept?

39 □ Scales
- Example: Social Distance to measure prejudice in Ireland.
- Survey for Protestants to measure their attitudes vis-à-vis Catholics

40 □ Difference between Scale and Index?
- Scale assumes some kind of pattern of responses
- For example: “cumulative” relationship between different indicators. As in
  social distance: far, closer, closest

41 □ Unit of Analysis
- Level of social life on which the research question is focused
- Aggregate individuals - groups
- Examples: individual, household, group, city, country, continent