Basic Concepts

• Purpose of Science:
  exploration, description, explanation

• Attributes:
  descriptive characteristics

• Variables:
  logical groupings of attributes

Association

X

Y
Causality

\[ X \rightarrow Y \]

Independence model
(hypothetical)

<table>
<thead>
<tr>
<th>Percentage Supporting Abortion, by Education Level</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>50</td>
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</tr>
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<td>50</td>
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<tr>
<td>Total</td>
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### Positive association
(hypothetical)

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### Negative association
(hypothetical)

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Units of Analysis

“Categorizing possible units of analysis may make the concept seem more complicated than it needs to be. What you call a given unit of analysis—a group, a formal organization, or a social artifact—is irrelevant. The key is to be clear about what your unit of analysis is.” (my emphasis)


Units of Analysis (n=4)

- Individual: attributes of people
- Social groups: populations of people
- Formal organizations: organizations with formal structure, rules, charter
- Social artifacts: social objects
What’s the Unit of Analysis?
(what or whom is studied?)

1) Sex and political attitudes
2) Car brand and crash statistics
3) Proportion transient in a city and reported burglaries
4) Size of firm and percent of employees who are minority
5) Percent democrats in a congressional district and number of social programs
6) Support of oil companies for environmental causes and amount of oil spilled per year

Ecological Fallacy
(confounding units of analysis)

Unit of Analysis = social group (city)

Percent minority ➔ Drug arrests

*Moral:* Don’t move down to lower unit of analysis and make causal argument.
Timing of data collection and causality

- Cross-sectional: snapshot, can’t infer causality
- Longitudinal studies: helps with causality
  - Trend studies
  - Cohort studies
  - Panel studies

Conceptualization (Basic definitions)

- Concept: mental images
- Conceptualization: specifying precisely what we mean by our concepts
- Interchangeability of indicators: evaluating multiple indicators of concepts
Alternative description

Assigning definitions:
✓ Real definition: concepts are not real
✓ Nominal definition: definition assigned
✓ Operational definition: specific definition
✓ Reification: danger of thinking our concepts are real

Granovetter’s “strength of weak ties”

- **Concept**: strength of ties
- **Nominal definition**: frequency of contact with friend who passed along job information
- **Operational definition**: How often did you see the contact around the time he/she passed on the job information?
  1) Often (at least twice a week)
  2) Occasionally (greater than once a year, but less than twice a week)
  3) Rarely (once a year or less)

**Sample**: people who recently found jobs through contacts
Granovetter’s findings
(univariate statistics)

<table>
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<th>Frequency of contact with friend</th>
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<tbody>
<tr>
<td>1. Often</td>
<td>17</td>
</tr>
<tr>
<td>2. Occasionally</td>
<td>55</td>
</tr>
<tr>
<td>3. Rarely</td>
<td>28</td>
</tr>
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REMEmBER!

Effect = noun
Affect = verb