

Social Science and the Scientific Method

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Overview

- 1 Housekeeping
- 2 Social science: An Overview
- 3 Wicked Problems
- 4 The Scientific Method
- 5 The Scientific Method and Wicked Problems

- Waitlisted students: register **before the end of the week!**
- Last day to add/drop: **Friday, February 9, 2018**
- Chapman email: **use it!**
- Readings posted on website now BUT you're **on your own after next week**
- 1st **hwk** prompt and rubric to be posted on website by **week's end** (expect email notification)
- Office hours start next week: **MW LLB14 12p-1pm** and **by appointment**
- I'll start taking attendance **next week** using a sign-in sheet

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- Political scientists study politics, anthropologists study individuals and communities, economists study human interactions in the marketplace, psychologists study human behavior, and **sociologists study human interaction at the societal level.**
- But wait, what is **behavioral science**?

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 - Popular and media messages

What do we mean by “research methodology”?

- *Methodology* encompasses the entirety of the research process; including the social context the research undertaken, ethical principles of the researcher, their philosophical assumptions, and the political impact of the production of new knowledge

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- *Methodology* encompasses the entirety of the research process; including the social context the research undertaken, ethical principles of the researcher, their philosophical assumptions, and the political impact of the production of new knowledge
- *Methods* refer to the assortment of techniques used in a research program to select cases, record social interaction, collect and analyze data, and report on results.

Research Methodologies

Qualitative

Addresses: Who, what, when, how, and why? Primarily about understanding the nature of a phenomenon.

Quantitative

Addresses: How much? Primarily about magnitude but quantitative social scientists are becoming better at the who, what, when, and how questions.

Mixed-Methods

QCA, Triangulation, Sequential Explanatory Design, Sequential Exploratory Design. Best of both worlds?

Qualitative: Pros and Cons

Pros

- 1 Explore topics in more depth and detail than quant research

Cons

- 1 Lacks generalizability

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- 2 Reproducibility is difficult

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Pros

- 1 Explore topics in more depth and detail than quant research
- 2 Useful for exploratory analysis
- 3 Barrier to entry low

Cons

- 1 Lacks generalizability
- 2 Reproducibility is difficult
- 3 Often unable to isolate cause and effect

Quantitative: Pros and Cons

Pros

- 1 Generalizable findings

Cons

- 1 Not everything can be quantified

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- 1 Generalizable findings
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Quantitative: Pros and Cons

Pros

- 1 Generalizable findings
- 2 Reproducible research
- 3 Systematic and rigorous

Cons

- 1 Not everything can be quantified
- 2 Accessibility issues
- 3 Barrier to entry > qual methods

Wicked Problems

Tame

- Clear boundaries

Wicked

- Open systems

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Wicked Problems

Tame

- Clear boundaries
- Solutions are identifiable and verifiable
- Structured problems with road maps
- Finite number of elements interacting in the system
- **Technical problem at core**

Wicked

- Open systems
- Solutions are infinite or non-existent
- “Messy” problems
- Problems characterized by many interconnected, moving parts
- **Conflicting values and beliefs about nature of problem**

- Positivism



The Scientific Method

- Positivism
- Reproducible

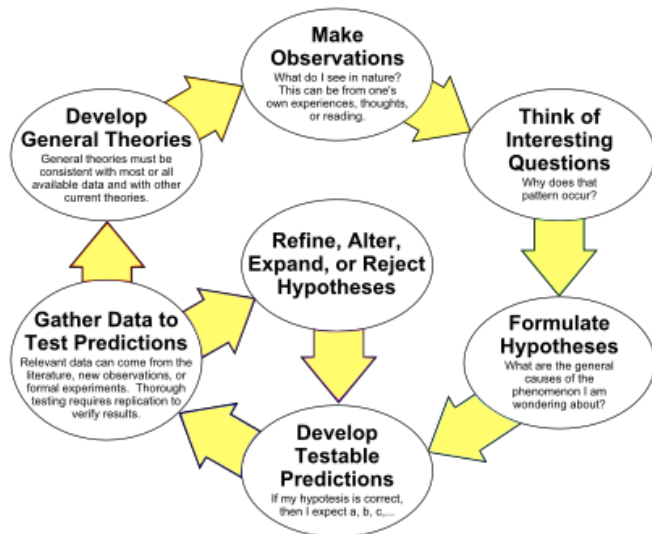


The Scientific Method

- Positivism
- Reproducible
- Generalizable
- Absolute truths?

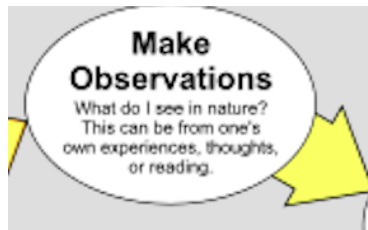


The Scientific Method as an Ongoing Process



Make Observations

- Observation
- Description
- Standpoint bias (wicked problems)



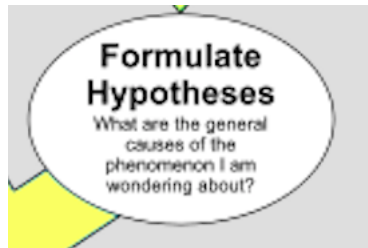
Think of Interesting Question

- Must be relevant to needs
- Empirically based question
- Identifies regularity
- Examples?



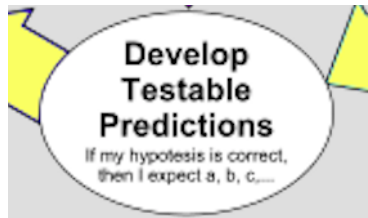
Formulate Hypothesis

- Based on observations, previous literature, and theory
- Identify DV and EV
- Identify directionality
- Identify conditional relationships
- What makes a hypothesis good?



Develop Testable Predictions

- Falsifiability
- Null hypotheses
 - EX: Minimum wage increases have no effect on the unemployment rate
- Alternative hypotheses
 - EX: Minimum wage increases increase the unemployment rate



Gather Data to Test Predictions

- Observational data



Gather Data to Test Predictions

- Observational data
- Experimental data



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- Survey data



Gather Data to Test Predictions

- Observational data
- Experimental data
- Survey data
- Case selection



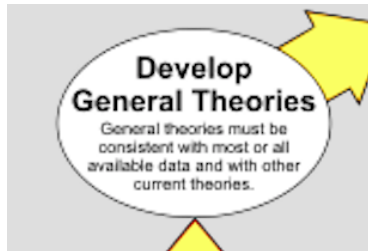
Gather Data to Test Predictions

- Observational data
- Experimental data
- Survey data
- Case selection
- Large- n vs small- n



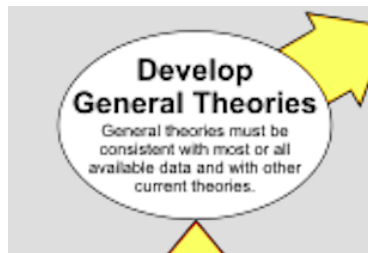
Develop General Theories

- Scope



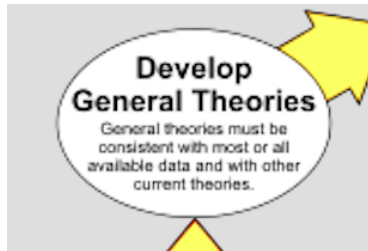
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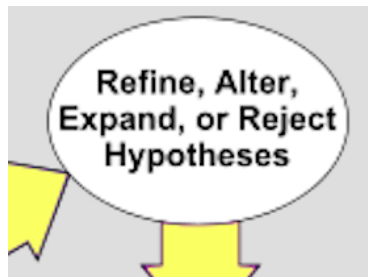
Develop General Theories

- Scope
- Parsimony
- Utility



Refine, alter, expand, or reject hypotheses

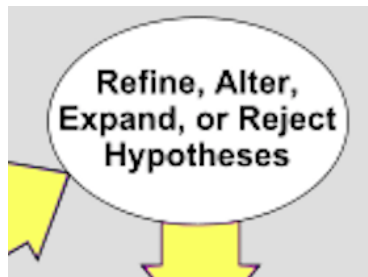
- Update in light of new information!



The Scientific Method...but wait!

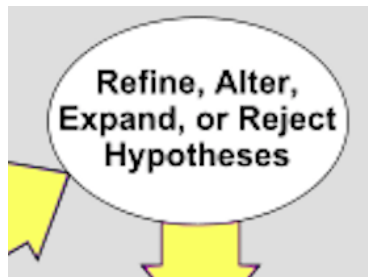
Refine, alter, expand, or reject hypotheses

- Update in light of new information!
- But how?



Refine, alter, expand, or reject hypotheses

- Update in light of new information!
- But how?
- Dangers of post-hoc analysis. Beware!



The Scientific Method and Wicked Problems

How does science help us address wicked problems?

- We know science can address tame problems...

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The Scientific Method and Wicked Problems

How does science help us address wicked problems?

- We know science can address tame problems...
- So let's breakdown wicked problems into their constituent elements
- Example: poverty alleviation
 - Should we spend more money on our country's social safety net to alleviate poverty?
 - What are some "tame" (scientific) questions that help us address this wicked problem of poverty?

Only one frame

Video on poverty, what did you think?