



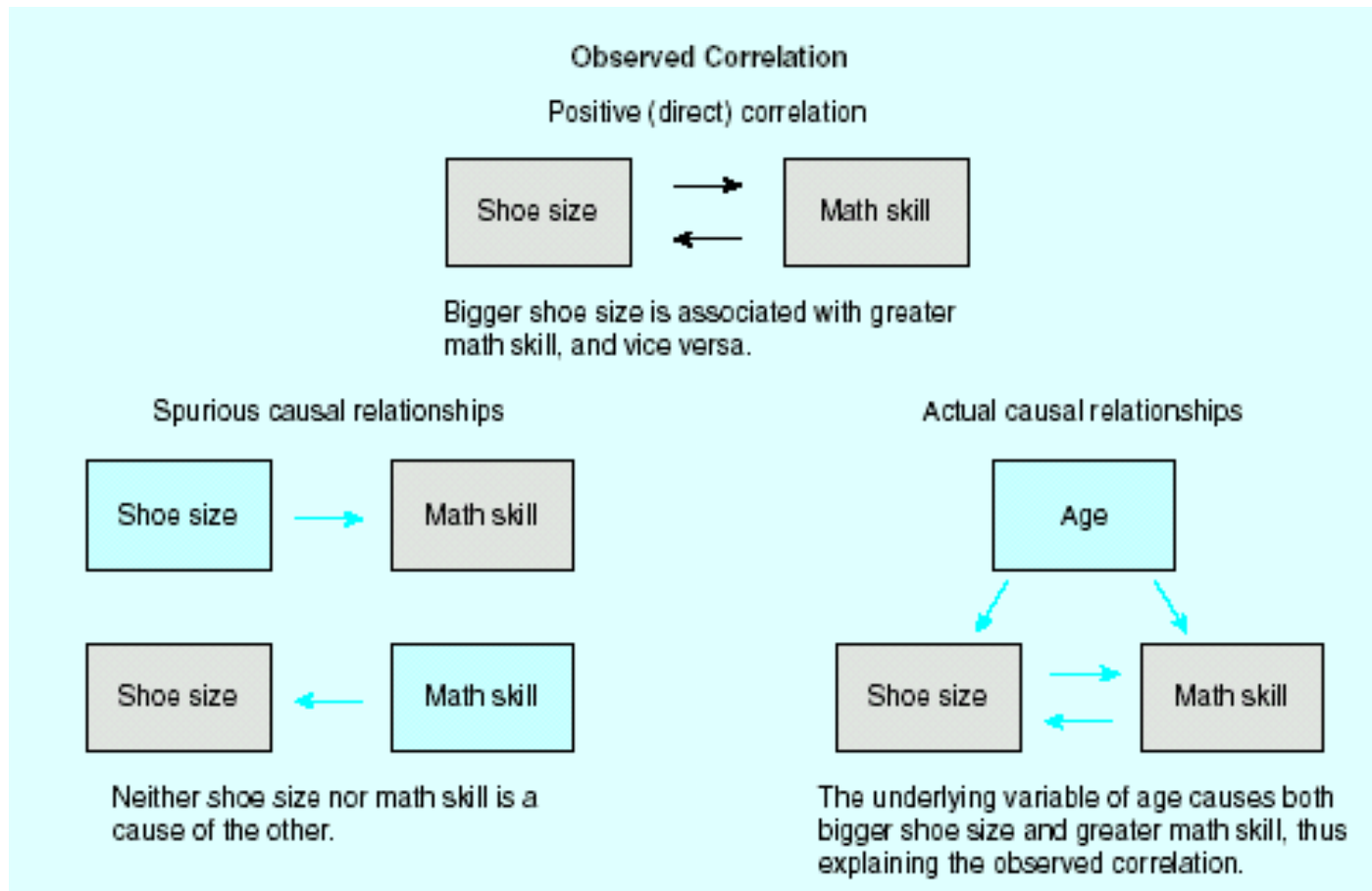
# Three Purposes of Research

- Exploration—may just point the way (not generalizable)
- Description—what, where, when, how
- Explanation--why

# Criteria for Nomothetic Causality

- A statistical **correlation** between the two variables.
- **Time order**--the cause takes place before the effect.
- **Non-spurious**--there is no third variable that can explain away the observed correlation as spurious.

# Example of a Spurious Causal Relationships





# Causality:

- Does not require complete causation.
- Allows for exceptions
- Uses probability

# Necessary and Sufficient Causes

- Necessary cause represents a condition that must be present for the effect to follow.  
--"going to college" causes "college degree"
- Sufficient cause represents a condition that if present, guarantees the effect in question.  
--"skipping a test" causes "failing the test"



# Units of Analysis:

What is examined in order to create summary descriptions

## Unit Levels:

- Individuals
- Groups
- Organizations
- Social artifacts

# Units of Analysis and Faulty Reasoning

- **Ecological fallacy** – assuming something learned about an ecological unit says something about the individuals in the unit.
- Example: Universities with high SATs have more women therefore women have higher SATs (What is the unit of analysis in this example?)

# Units of Analysis and Faulty Reasoning

- **Reductionism** – Reducing something to a simple explanation when in reality it is complex.
- Example—people die in nursing homes because of old age (What is the unit of analysis?)



# The Time Dimension

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- **Cross-Sectional Studies**—one point in time (can be done quickly & relatively inexpensively)
- **Longitudinal Studies**—done over time (can be expensive and time consuming)
  - Trend Studies—change of a population (e.g., U.S. census in 60s, 70s, and 80s)
  - Cohort Studies—change of a particular group (e.g., people born in 1980s)
  - Panel Studies—change of same people



# How to Design a Research Project

1. Define the topic and purpose of your project.
2. Conduct a literature review on the topic
3. If the literature provides existing knowledge on the topic then review any existing theories presented, consider whether to test one or test each.



# How to Design a Research Project

- Develop hypotheses related to one or more theories
  - develop concepts for each hypothesis (conceptualization)
- Choose a research method(s) to test hypotheses (e.g., survey, observation, documents)



# How to Design a Research Project

- Collect data
- Analyze data
- Report writing and/or application



# Elements of a Research Proposal

- **Selecting topic**
  - where will money come from
- **How much to ask for**
  - establishing budget
- **Proposal design**
  - introduction
  - review of literature
  - methodology
  - other (description of researchers & funding institution, how contributes to what funder wants)



# Elements of a Research Proposal

- **Schedule**
- **Budget**
- **Life of proposal reviewers**
  - needs to be easy to read
  - good “catchy” intro
  - headings that match scoring of proposal
- Why proposal have or have not failed (**hand out**)