PSY 254
Precept 2 - Methods

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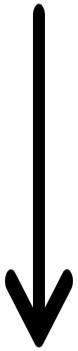
Today’s agenda

- Methods and Data Talk
- Kisilevsky (2003) Discussion
- Princeton Baby Lab Tour

How to conduct (developmental) science

1. Make an **observation** and turn it into a **question**
2. What is your **hypothesis**? Possible answer to your question
3. Design a **methodology** to test your hypothesis
4. **Collect** data
5. **Analyze** data

Types of (Developmental) Science



Deductive

Hypothesis first…data second!

Top down, confirmatory

Inductive

Data first ...hypothesis second!

Bottom up, exploratory

Deductive or Inductive?

Netflix analyzes your daily watching patterns to recommend new movies

A neuroscientist stimulates neurons in the amygdala of rats as they perform a learning task

A school introduces anti-bullying posters in half its schools, counts bullying reports every quarter

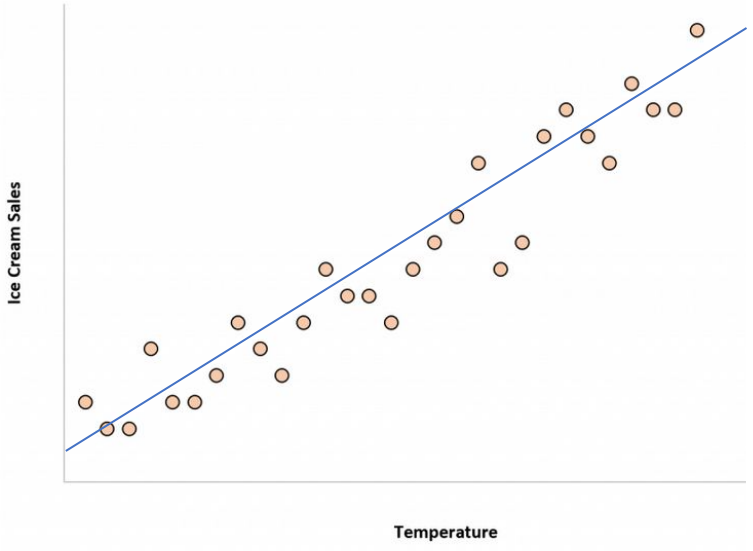
The World Bank correlates GDP with other indices to figure out why some countries are poor

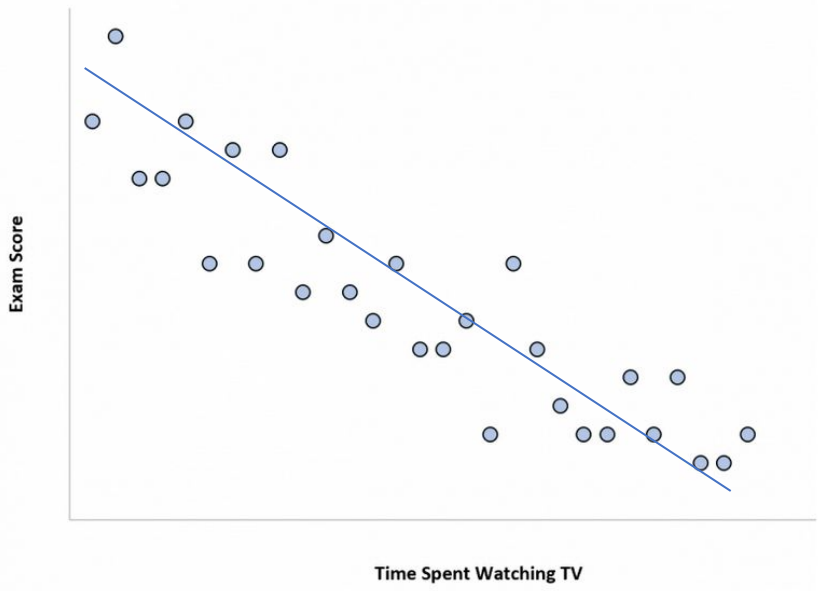
Analysis the Data using Correlations

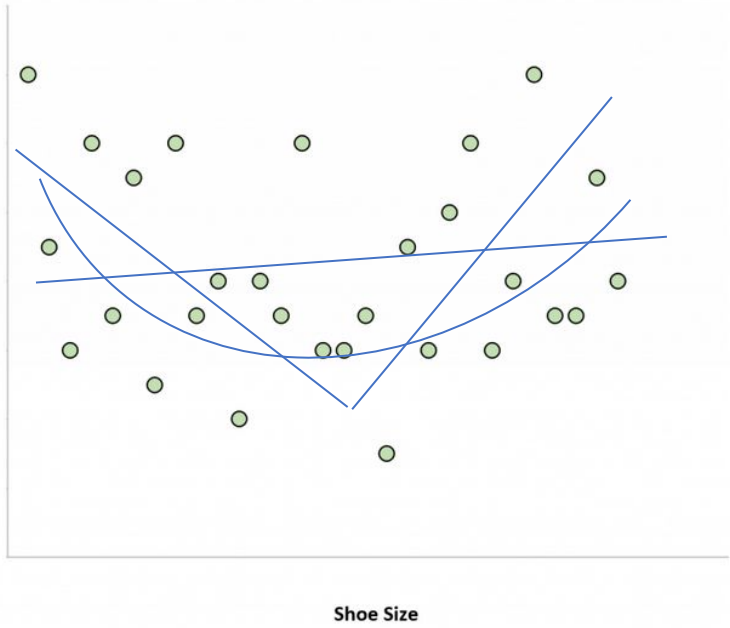
Fit of the Line (r = ?)

Direction Matters!

- Negative slope; as x increases, y decreases, r < 0
- Positive slope; as x increases, y increases, r > 0



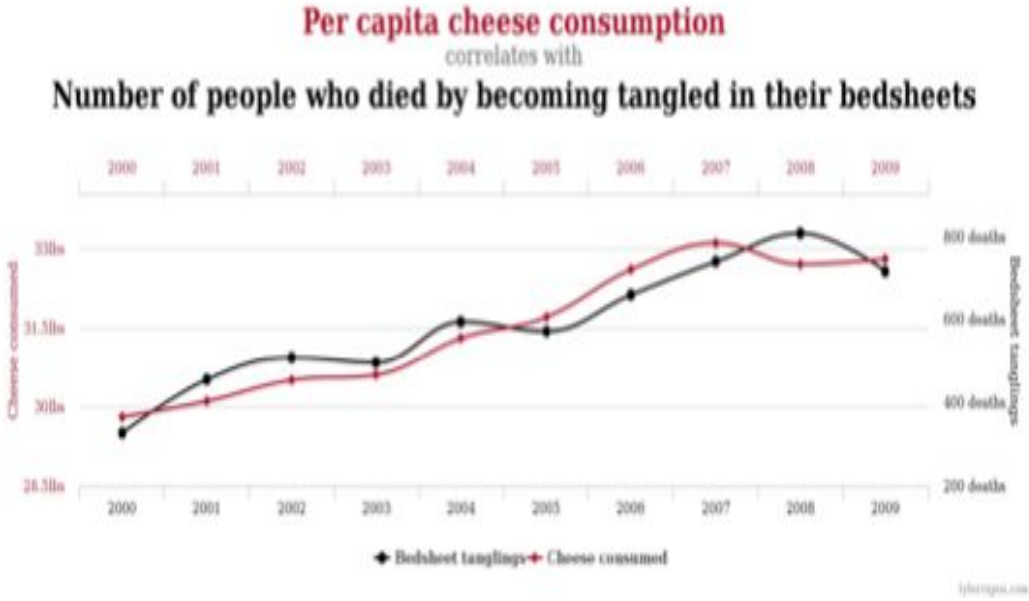


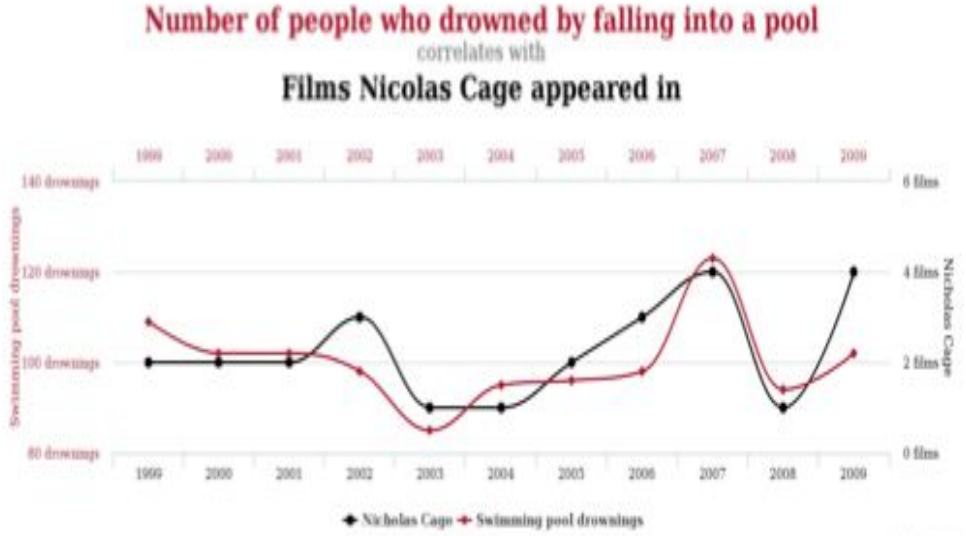


BUT…

CORRELATION IS <u>NOT</u> CAUSATION:

- Correlation indicates correlation, not cause – effect relationship.
- Can there be a latent variable in play here?





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Kisilevsky (2003)

- Hypothesis:
- Participants:
- Independent variable:
- Dependent variable:
- Results:
- Problems?:

Kisilevsky (2003)

- Hypothesis: Fetuses recognize their own mother's voice
- Participants: 60 term fetuses
- Independent variable: person reading a passage (mother, female stranger)
- Dependent variable: fetal heart rate and body movement
- Results: ↑ heart rate for mother, ↓ heart rate for stranger
- Problems?:

Are these results valid?

Internal Validity

- Are we certain A causes B?
- Increase control while decreasing confounds

External Validity

- Ecological validity; how representative is the experiment of the real world?

Good experiments have both!

Help us improve your experience by providing feedback on this page.

UPFRONT

Are your findings 'WEIRD'?

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Print version: page 11

The over-sampling of American college students may be skewing our understanding of human behavior, finds an analysis by researchers from the University of British Columbia. In a forthcoming issue of Brain and Behavioral Sciences, anthropologist Joe Henrich, PhD, and psychologists Steven Heine, PhD, and Ara Norenzayan, PhD, review the available database of comparative social and behavioral science studies. They found that people from Western, educated, industrialized, rich and democratic (WEIRD) societies — who represent as much as 80 percent of study participants, but only 12 percent of the world's population — are not only unrepresentative of humans as a species, but on many measures they're outliers.

Are these results valid

- **Face Validity**
  to test this id
- **Convergent**
  same pattern
- **Divergent Validit**
  same pattern

different tasks to see if they sh e

Which has higher convergent validity: Taking the ACT and SAT or MCAT and LSAT?

Which has higher divergent validity: Taking the ACT and SAT or MCAT and LSAT?

Did Kisile
measur
convergen
divergent validity, or mixed?

zzfeed

Alternative hypotheses; avoiding confounds

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For next class:

- Do the reading -- Smith
  - Come to class with questions/comments about this paper
- Submit a multiple-choice mock exam question on Canvas
- Office Hours; Thursdays 12-1pm (In-Person and Zoom)
  - …or just email me!
- Don’t forget to sign up to present your baby photo!

Princeton Baby Lab

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