Outline for 25 October

• Readings for my lectures
  – Davis & Smith (2005)
    • Chapters 1,2,5,7,10,17
  – Smith & Davis (3rd edition)
    • Chapters 1,2,6,7,9,13

• Finish sampling
• DVs (dependent variables)
• validity, reliability


• N=160
• Speed, mean = 3.2
• Clarity, mean = 3.79
Qualitative analysis

• 3 Handouts before
• Not sure which notes should be taken down
• didn't understand correlations
• didn't get nothing
• 2 sampling error or bias
• Its all good
• 3 sampling, UK vs. US
• understood it all! Have a nice day!
• Keep using examples
• Please name the topic of the lecture before the lecture
• It wasn't too fast as such, but a lot of the slides didn't seem to be relevant to topic
• 2 smiley
• U make research fun!
• I love research now!
• links between topics
• A lot of information covered in today's lecture was discussed at our first practical
• Would be good to have names of experiments/people written on board
• didn't understand your sexual obsessions! (joke)
• Didn't understand when things are presented in initials
• Didn't understand different types of samples and acquiring knowledge bit
• Didn't understand the word extraneous

Any problems with this study?

• Speed, mean = 3.2   Clarity, mean = 3.79

• Sampling? N=161 out of 200
• Maybe people who thought things were fine were more likely to not respond
• This is sampling bias which biases the mean rating to be somewhat lower than it should be
Survey- not an experiment!

- Nationality is a *participant characteristic*
- Sampling bias
  - Randomly pick from registered voters
  - In USA, harder to register to vote so more non-voters missing from USA sample
  - These non-voters less likely to believe in God
  - Sampling bias towards those who believe in God

Sampling and *generalizing*

- Most psychology studies use a sample of students between the ages of 18 and 21, including sexual arousal study
  - Humans in a sample are called “participants” or “subjects”
- Reason for study: Interest in cause of unwanted babies globally
- Will a finding with this sample *generalize* to the world *population* as a whole?
- *External validity*: do results apply to populations and situations different from those of your experiment?
Methods

- Randomly assign half of participants (male undergraduates) to “alcohol” condition, half to “no alcohol” condition. Bring participants into lab after going through consent form, give alcohol condition participants a vodka tonic. Wait 20 minutes, start video. After, measure sexual arousal.

Results

- Conclusion: alcohol increases sexual arousal
DV: from abstract to specific

• Alcohol and sexual arousal study
  – Hypothetical construct- sexual arousal
  – Variable (aspect) being measured
    • Perceived self-arousal
  – Operational definition
    • Rating on 7-point scale

DV: from abstract to specific (operationalizing)

• Students from poorer families have lower intelligence?
  – Hypothetical construct- intelligence
  – Variable (aspect) being measured
    • Vocabulary and problem-solving ability
  – Operational definition
    • Number correct on IQ test given at school
DV problems: *validity* and *reliability*

- **Validity** - a measure is valid if it measures what it’s supposed to measure (OK if randomly fluctuates)
- **Reliability** - consistency of the data from measurement to measurement. If it yields the same results on repeated measures, it is reliable (random fluctuation is opposite of reliability)

---

**DV problems: *validity***

- Poorer students have lower intelligence?
  - *Hypothetical construct* - intelligence
  - What if test-taking ability is very different from real-world ability?
  - What if vocabulary reflects studying more than how smart you are?
  - *Variable* (aspect) being measured
    - Vocabulary and abstract problem-solving ability
    - What if poorer students are more tired due to problems at home?
    - What if teachers in higher-income neighborhoods give more example test problems?
    - What if test words are used more frequently in richer neighborhoods, differ from slang in poorer areas?
  - *Operational definition* - Number correct on IQ test
D.V., operationalizing

- Hypothesis- sensory messages take significant time to travel
- Experiment design: how can we show this?
- Using vibrotactile actuator (to stimulate finger) with electrode placed in arm with microsurgery connected to SQUIDs to amplify tiny signal, connected to circuit triggering high-tech atomic clocks, or

D.V., operationalizing

- No, just a stopwatch, a bunch of people, and a little ingenuity!
- Start stopwatch, pinch you, stop stopwatch when you yell that you feel the pinch?
Hypothesis - sensory messages take significant time to travel

• Method: start watch, each person pinches the next, stop watch when last person feels it
• IV: position stimulated on arm: wrist vs. shoulder
• DV: total group transmission time
• Prediction: group transmission time will be faster when pinch shoulder
  – Because message has to travel only from shoulder to brain instead of from wrist to brain

Hypothesis - sensory messages take significant time to travel

• Each person hold the adjacent person’s wrist
• When you feel your wrist squeezed, squeeze the next person’s wrist
• Last person stops watch
Conduction velocity demo

- Speed of transmission 2-120 meters/sec (4.5-270 miles/hour)
- 64 meters per second for median nerve in forearm
- What is it for the average arm in this class?

DV problems: validity and reliability

- Validity- a measure is valid if it measures what it’s supposed to measure
- Reliability- consistency of the data from measurement to measurement. (random fluctuation is opposite of reliability)
DV problems: *reliability* and *validity*

- A measure can be reliable without being valid
- I will reliably measure anxiety with a thermometer!
  - Temperature readings may be very consistent with repeated measurements
  - But not valid measure of anxiety

**DV problems**

- Measuring sensory conduction velocity
- Reliable?
- Valid?

- What was the *hypothetical construct*?
  - Travel time of sensory impulses
- *Variable* (aspect) being measured
  - time for sensory signal to travel along arm
- *Operational definition*
  - Stopwatch-clocked difference in room reaction time when include arm and when not
Next time

• Validity
• Confounds (extraneous variables)
• Independent vs. quasi-independent variable
• Within vs. between-subjects
• Principles of designing a successful experiment
• Ch. 6,7 of Smith & Davis OR Ch. 5,7 of Davis & Smith

One-minute quiz

• 1. Something didn’t understand
• 2. Any other comments