SINGLE-SUBJECT DESIGNS

What is a single-subject (small-*n*) design?

- Not necessarily a single subject
- Subject acts as their own control
- Subject is exposed to each condition of the experiment
- Repeated Measures
  - Within each condition, a dimension of behavior is measured multiple times
- Data are analyzed for each subject separately

What is the dependent variable?

- Dimensions of behavior
  - Rate
    - Number of steps per hour
    - Cigarettes smoked per day
    - Complaints per minute
  - Duration
    - Time spent working on homework
    - Time spent out of seat
  - Intensity
    - Decibels (loudness)

Areas of Research & Treatment

- Treatment for individuals on the autism spectrum, with ID, and DD

- At UNCW (just a few examples)
  - Stimulus equivalence research (Dr. Pilgrim's lab)
  - Treatments for pediatric feeding disorders (Dr. Bachmeyer's lab)
  - Physical activity research (Dr. Donlin's lab)

- Other interesting areas of research
  - Type 1 Diabetes management (Raiff & Dallery, 2013)
  - Disruptive behavior at dentist (O'Callaghan, Allen, Powell, & Salama, 2006)
  - Environmental enrichment in zoos and aquariums

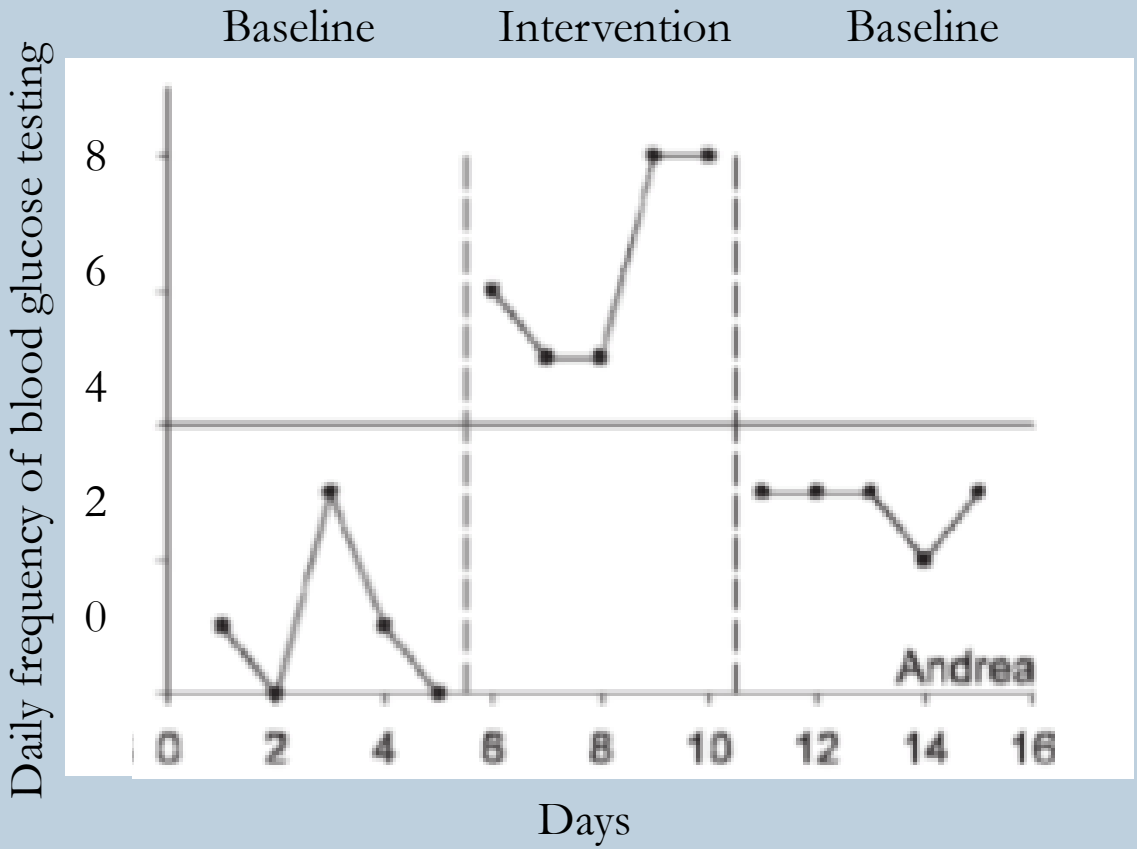
Small-*n* Example

- Raiff & Dallery, 2013
- IV: Baseline (control), Intervention (vouchers)
- DV: Frequency of blood glucose tests
- Example participant: Andrea
  - Baseline -> 5 days
  - Intervention -> 5 days
  - Baseline -> 5 days

ABA Reversal Design

- A = Baseline
- B = Intervention
- A = Return to baseline

- Did the intervention work for Andrea?



graph adapted from Raiff & Dallery (2013)

How do we minimize threats to internal validity?

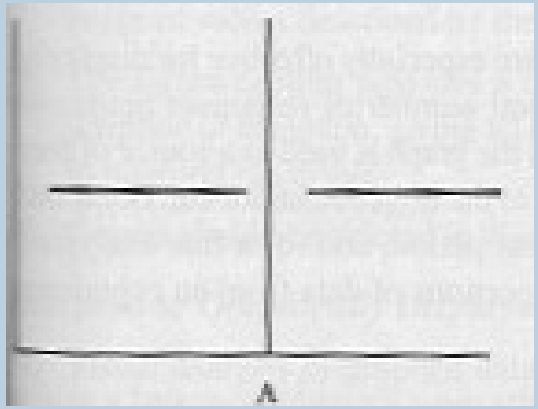
- Experimental control (control of the environment)
  - Demonstrate a reliable effect
  - Eliminates or reduces the possibility of confounding variables
- Repeated measures
- Use of various designs (e.g., multiple baseline)
- Counterbalancing

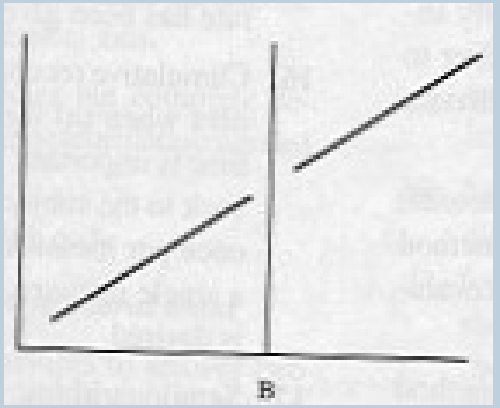
- … and what about the external validity of small-n experiments?

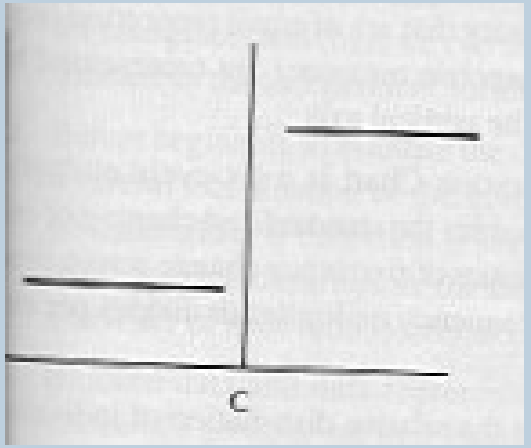
Visual Analysis- What do you look for?

- Stability is key!!!
- Trends
- Changes in level

- Was the intervention successful for Participant A? B? C?







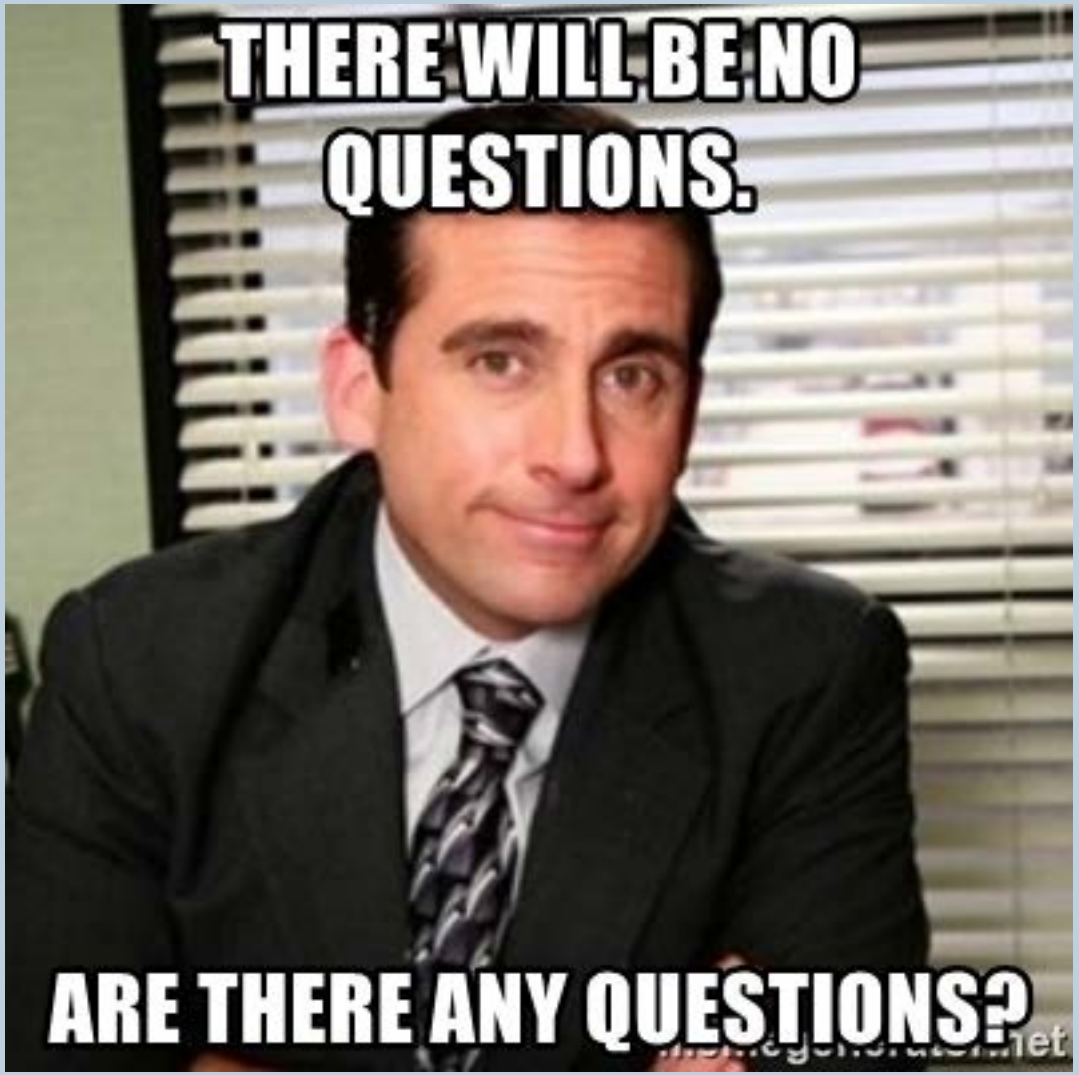
graphs from Cooper, Heron, & Heward (2007)

References

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis,* 2nd ed. Upper Saddle River, NJ: Pearson Prentice Hall.

O'Callaghan, P. M., Allen, K. D., Powell, S., & Salama, F. (2006). The efficacy of noncontingent escape for decreasing children's disruptive behavior during restorative dental treatment. *Journal of Applied Behavior Analysis*, *39*, 161–171.

Raiff, B. R., & Dallery, J. (2010). Internet-based contingency management to improve adherence with blood glucose testing recommendations for teens with type 1 diabetes. *Journal of Applied Behavior Analysis, 43*, 487-91.


THERE WILL BE NO QUESTIONS.
ARE THERE ANY QUESTIONS?