



## Graphing & Single Case Research Designs

SPCD 519

Just a few things on Reliability,  
Graphing, and creating a Summary  
Table for your data

## Reliability



- Reliability is the **Consistency** of measurement across conditions, regardless of who the observer is.
- Reliability is NOT a measure of the “truth” of the behavior! It is a measure of consistency of measurement
  - Interobserver Reliability or Agreement (IOA)  
A second observer independently measures the target behavior(s). The two results are compared for accuracy, yielding a coefficient or percentage of agreement.

## IOA: Event Recording

$$\frac{\text{smaller number}}{\text{larger number}} \times 100\% = \text{percent of agreement}$$

Observer	Number of Times Student Raises Hand							
Teacher	x		x		x	x	x	Total = 5
Paraeducator		x	x	x			x	Total = 4

$$\frac{4}{5} \times 100\% = 80\% \text{ agreement}$$

### Graphing Data

- You will be expected to graph the baseline and intervention data you collect for your Functional Assessment Project.
- You do not have to use the computer to graph the data but your graph, even if hand drawn , must include certain information and must be neat and professional in appearance.

### Graphing Your Data

- y-axis (ordinate) – vertical; this is where you graph the target behavior (dependent variable)
- x-axis (abscissa) – horizontal; indicates the time dimension
- Phase/condition lines – vertical, dashed lines indicating changes in conditions or treatment phases
- Don't connect data points between phases
  - Connect data points only for consecutive data points within a phase
- Use break lines in the axis to represent “dead space”
- Use labels to make graphs readable

Example of a Data Summary Table that summarizes your daily data into a table.

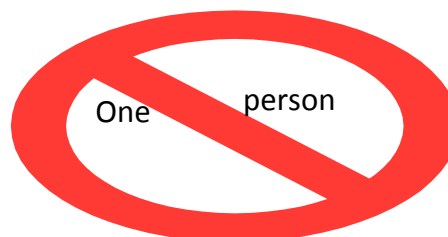
Sessions/Date	# of Behaviors	Condition Mean
Baseline		
2/8	8	
2/9	4	
2/10	7	
2/11	8	
2/12	10	7.4
Intervention		
2/15	4	
2/16	3	
2/17	3	
2/18	0	2.5

## Single Case Research Designs

### Why learn about single case research?

- Most importantly, so that you can read the intervention literature knowledgeably and make decisions in your practice based on research.
- Because you are a graduate student! All graduate students at UNM are expected to learn some basics about research – this is a defining feature of graduate school.
- Finally, on a practical note, learning the basics of single case research will help you complete the research article review you will be doing next month.

### Single-Case Research Designs (also called Single Subject)

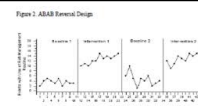


### Single case research helps us

- Determine if an intervention is effective
  - with different groups of individuals; or
  - under different conditions; or
  - to compare which of two or more interventions is most effective and/or efficient; or
  - to determine “how much” of an intervention is needed to establish a functional relationship

“Therefore, the purpose of the current study was to examine the use of a Social Stories intervention package on the social communication behaviors of 2 students with autism enrolled in full-inclusion kindergarten classrooms.” ( Chan & O'Reilly, 2008, p. 405)

### Core Features of Single Case Designs



- Repeated (multiple) measures
- Compare an individual's behavior to her or himself (each participant is his/her own control)
- Emphasis on clinical vs. statistical significance
- Provides information specific to individuals vs. average performance of a group
- Demonstration of functional relationships between intervention and target behavior
- Uses visual analysis of data rather than statistical analysis

## Analyzing Data: Visual Analysis

We use visual analysis rather than statistical analysis b/c the data in a single-case design violate some of the assumptions needed to do statistical analysis. Some things to remember when visually analyzing data in your FBA projects:

Look only at adjacent phases to compare data.

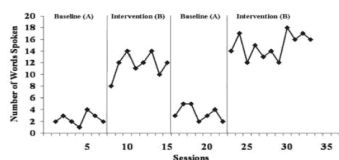


Figure 1. ABAB design: Hypothetical representation of child communication outcomes.

## Analyzing Data: Visual Analysis

Check your data for:

- Variability
  - Range of data points
- Stability
  - Little variability OR patterns of variability
- Level
  - Magnitude of data as indicated by the ordinate (y) scale value
- Trend or Slope
  - Steepness of the data path across time
- Immediacy of Effect
  - How quickly did performance change after the intervention began?

## Visual Analysis

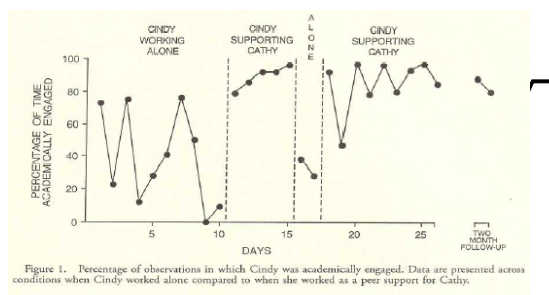


Figure 1. Percentage of observations in which Cindy was academically engaged. Data are presented across conditions when Cindy worked alone compared to when she worked as a peer support for Cathy.

## FAQs about your FBA projects

1. You will be using an A-B design – NOT the other kinds of designs you worked on tonight. The designs you worked on tonight are the kinds of designs you will find when you do the ABA research article review in March.

2. You do NOT have to measure and calculate interobserver reliability (IOA) for your FBA project. You DO need to know about IOA to be able to complete the ABA research article review assignment.

## Coming up. . .



### Next Week (2/23)

- Read Chapter 10 in your text and Pengra Chapter 2 (on e-reserves) so that you can participate in class discussions and activities
- Complete and turn in Vocab #5

### Turn in FAP-Subsection 2

- Read the grading checklist carefully to be sure your assignment includes all required components.
  - To receive full points, include the grading checklist as the first page and use APA formatting.
  - Read the feedback you received on FAP Subsection 1 and make the adjustments requested.
  - Make an appointment for office hours if you need help or ask someone in your group for help.