Ok, I'm teaching a behavior that is important to the culture and person and I know my data and graph displays are believable, but...

How do I know my teaching is

Analytical

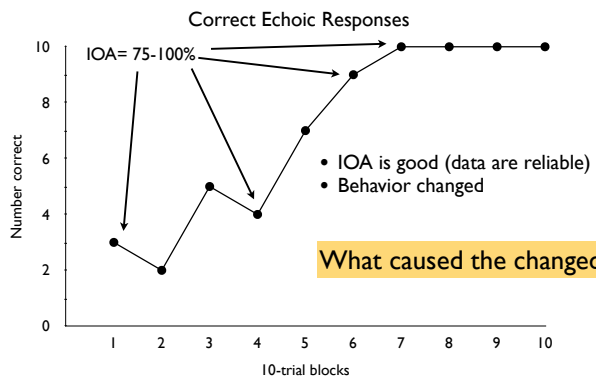
Analytical: What caused a behavior change?

How do you know what caused a change in behavior?

- How do you know that the <u>teaching procedure</u> caused the behavior change.

- How do you know that the <u>teaching procedure</u> was done correctly?

Analytical: What caused the behavior change?

Correct Echoic Responses

IOA= 75-100%

- IOA is good (data are reliable)
- Behavior changed

What caused the changed?

Number correct — y-axis values: 10, 8, 6, 4, 2, 0

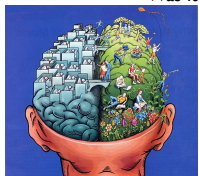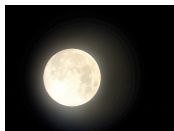10-trial blocks — x-axis values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

What caused the change in behavior?

Was it the teaching procedure?
Or...

Auditory Processor Kicked in?

Full Moon?

Developmental changes?

Wicked Witch from the West

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Analytical: What caused a behavior change?

One method to determine what causes a change IS
REPLICATION

Can you turn a response

ON   OFF

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Analytical

How do I know my procedures are analytical?

Research-based effective treatments
- Journal of Applied Behavior Analysis (JABA)
- Behavior Modification (BM)
- Behavioral Interventions (BI)
- Journal of Autism and Developmental Disabilities (JADD)
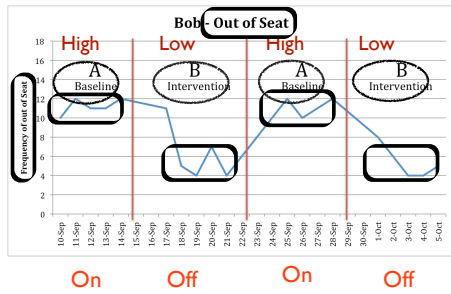- Education and Treatment of Children (ETC)

Most behavioral research must demonstrate that a procedure, in fact, controls a target (DV) response.

6

Replication: ABAB designs

Bob - Out of Seat

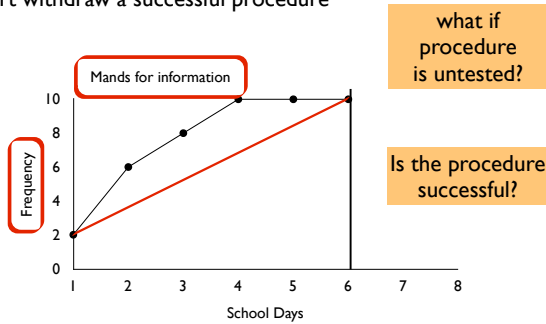High   Low   High   Low

A
Baseline

B
Intervention

A
Baseline

B
Intervention

Frequency of out of Seat

On   Off   On   Off

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ABAB Design and Ethics

Can't withdraw a successful procedure

Mands for information

Frequency

School Days

what if procedure is untested?

Is the procedure successful?

8

Demonstration that a procedure caused the change

Baseline   Information mands   Follow-up

What

Where

Who

When

Sessions   Weeks
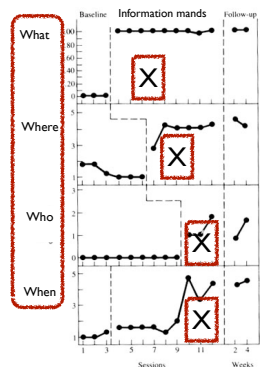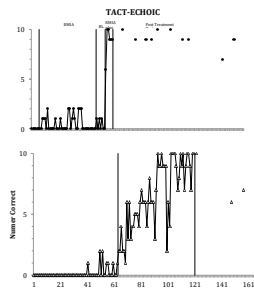
Multiple Baseline Designs

Mand training to ask for information procedure across WH questions

Multiple Baseline Design demonstrates that the procedure produced the behavior change

9
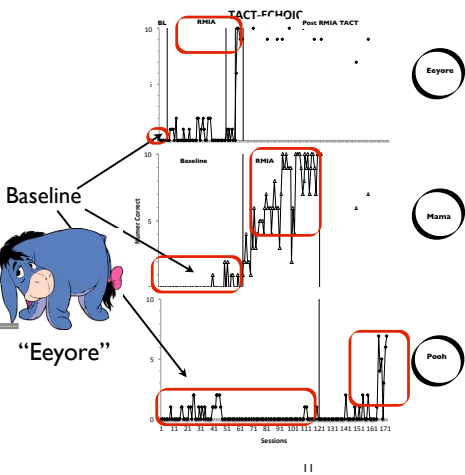
Rapid Motor Imitation Antecedent (RMIA)

Baseline

"Eeyore"

So, my teaching is *applied, behavioral, and analytic because I'm using teaching procedures from studies that have been replicated but,*

How do I know my teaching is

Technological

Procedural Fidelity / Treatment Integrity

Technological is NOT: "Using..."

SRA "Skill Builders"

Houghton and Mifflin's Reading Programs

Whole Language Approach

Phonetic Approach

Multi-sensory Approach

Most Commercial Available Programs

Especially for
early learners

Procedural Fidelity / Treatment Integrity

Procedural Fidelity requires
- a clear description of *all* the teaching steps
  - teacher responses
    - correct answer
    - incorrect answer (what do when student makes errors)
- Description of materials and how to use them

Sufficient detail
- Exactly implemented by others

Procedural Fidelity

no verbal behavior

doesn't understand language

can't imitate actions

Critical for some *early* learners that have few skills and those with behavior intervention plans (BIPs)
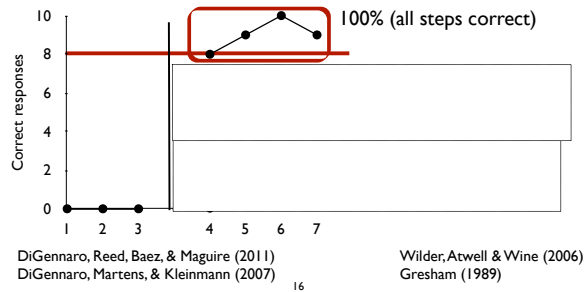
doesn't play with toys

can't select things when asked

don't look at teacher or materials

Varied levels of treatment integrity (TI)
100%, 50%, 0%

Effects of Procedural Fidelity Levels on Teaching Compliance Responses

100% (all steps correct)

DiGennaro, Reed, Baez, & Maguire (2011)
DiGennaro, Martens, & Kleinmann (2007)

Wilder, Atwell & Wine (2006)
Gresham (1989)

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Procedural (treatment) Integrity

Wheeler, J.J. Baggett, B.A., Fox, J., and Blevins, L. (2006). Treatment Integrity: A Review of Intervention Studies Conducted With Children With Autism Journal of Autism and Other Developmental Disabilities.

Reviewed 60 articles for the presence of
• operational defined procedures and
• measures of procedural integrity
  • 11 of 60 (18%) operationally defined and assessed TI

Alarm bell: we may not be using procedures that have been properly assessed. Read research carefully. Look for clear treatment descriptions and measures of treatment integrity.

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Procedural integrity checklists

General
• classroom organization
• general teaching routine

Detailed
• all responses (student and therapist)
  • prompting procedures
  • error correction procedures
  • responses to be reinforced
  • unexpected responses
  • durations of instruction, reinforcement, response latencies, etc.
• Data sheet
• Data instruction (how and when)

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Treatment Integrity Checklists For Session

1, 2, 3

Rate of responding

correct responses / minute

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Treatment Integrity Checklists for Session

Teacher actions

Evaluation

20

Developing Procedural Integrity (PI) Checklists

Y / Y + N * 100 = 7/ 7+3 = 70%

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Research Standard:
  30% of sessions

Applied Standard:
  Recommended
  No minimum
  Believability

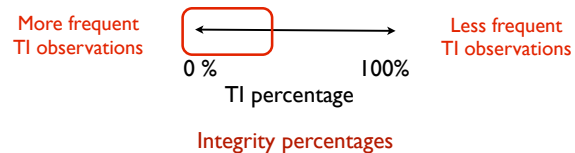• Samples TI during supervision
• Video tape and assess TI

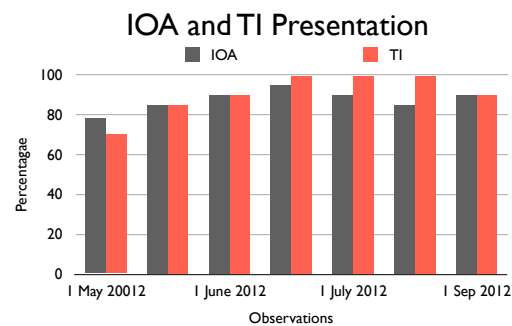Less   More

How Much TI data

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How Much Treatment Integrity (TI) Data?

Believability: Look at percentages

More frequent
TI observations

Less frequent
TI observations

0 %   100%

TI percentage

Integrity percentages

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IOA and TI Presentation

Inter-observer agreement (IOA): percentage of point by point intervals
Treatment integrity (TI): percentage of procedural steps correctly implemented

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Taking Treatment Integrity and IOA

Arguments Against:
- Don't have the time
- Insurance doesn't pay for it
- There's no one to do it
- Not necessary in applied settings like schools and homes
- Only needed if you want to publish

Arguments For:
- IOA indicates: reliable data of the person you're helping

- Treatment integrity indicates: a procedure was implemented correctly

- IOA and TI together indicate:
  - a change in behavior actually happened and it was the procedure responsible for that change in behavior

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Organizations that require TI and IOA

PaTTAN

- Billable under some funding sources as part of supervision
- Trumpet Behavioral Health:
  - mandates therapist receive completed PI assessments
  - live PI performances every 2 weeks (newer therapists more frequently)
  - PI performances are part of performance management system
  - IOA collected during supervision visits
  - PI and IOA part of supervisor's performance management system

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Ok, my teaching is *applied, behavioral, analytic, and technological because my procedures completely described and implemented correctly others, but...*

How do I know my teaching is

Conceptual

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Conceptual

are *our procedures informed by our discipline* and are they based on *principles of behavior*.

Principles of behavior

- Reinforcement
- Punishment
- Extinction
- Satiation
- Habituation
- Motivating Operations (MO)
- S^{-delta}
- S^D

Other ideas

- Readiness
  (lacks prerequisite skills)
  (inadequate teaching procedure)
- Doesn't have concept
  (inadequate reinforcement)
  (inadequate teaching procedure)
  (lacks prerequisite skills)
- Lacks Motivation
  (inadequate reinforcers)
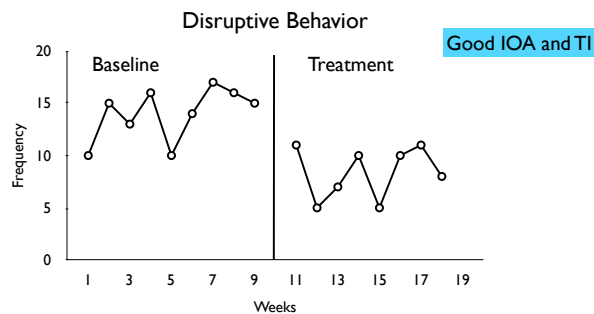 (insufficient reinforcement)
  (boring procedures or materials)

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Effective

Did the procedure work?

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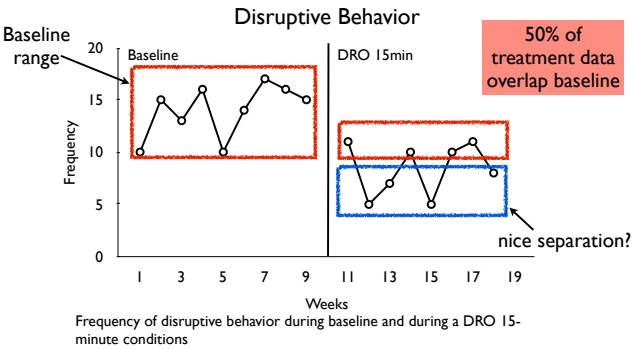Do our graphic displays tell the story?
Can we interpret the graphs?

Disruptive Behavior

Good IOA and TI

Frequency of disruptive behavior during baseline and during a DRO 15-minute conditions

30

Are we interpreting our displays correctly?

Disruptive Behavior

Baseline range

Baseline | DRO 15min

50% of treatment data overlap baseline

nice separation?

Frequency of disruptive behavior during baseline and during a DRO 15-minute conditions

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Generality

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Generality is NOT THE SAME as *generalization*

[referring to generalization] "dangerous belief that by producing behavioral change the individual has somehow been changed and that it is this changed person who goes into other settings. It must be remembered that we do not change or control the individual's behavior-the environment does." p2

"It can be argued that this whole perspective surrounding generalization is dangerously close to a mentalistic concept masquerading in behavioral raiment *(clothing)*" p2

[referring Stokes and Baer (1977)] "Thus, generalization is intentionally defined in conflict with its formal and standard use....to include behavior changes that certainly are the result of other behavioral processes" p2

Johnston, James M. (1979) On the relation between generalization and generality. *The Behavior Analyst, Fall* 1-6
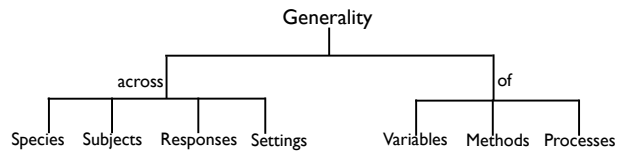
Stokes, T. F. & Baer, D. M. (1977) An Implicit technology of generalization. *Journal of Applied Behavior Analysis,* 349-367.

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Generality is NOT THE SAME as *generalization*

Generality refers to *replicability*

```
                    Generality
         ┌──────────────┴──────────────┐
       across                          of
   ┌────┬────┬────┐              ┌────┬────┬────┐
Species Subjects Responses Settings  Variables Methods Processes
```

Johnston, James M. (1979) On the Relation Between Generalization and Generality. *The Behavior Analyst, Fall* 1-6
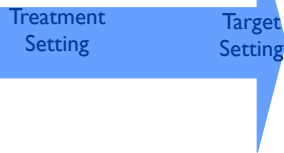

Consider Generality from Research to Treatment to Target

Can We Reproduce Results Across

- person (e.g., age, sex, cultural)
- diagnosis (e.g., ASD, dementia)
- setting: (e.g. home, school)
- social: (e.g., peers, adults, teacher)
- response: (e.g., mands)
- reinforcers (e.g., social, tangible)
- schedule (e.g., fixed, signaled, variable)
- procedure (e.g., DRA, SSP, RMIA)

Treatment Setting → Target Setting

References

Diamond, Jared (1997), *Guns, Germs, and Steel.* W. W. Norton & Company

DiGennaro, Reed, Baez, & Maguire (2011). A parametric analysis of errors of commission during discrete-trial training. *Journal of Applied Behavior Analysis, 44,* 611-615.

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Grow, L. L., Carr, J. E., Kodak, T.M., Jostad, C.M. and Kisamore, A. N. (2011). A comparison of methods for teaching receptive labeling to children with autism disorders. *Journal of Applied Behavior Analysis, 44,* 475-498

Ross, Denise E. and Greer, Douglas R. (2003) Generalized imitation and mand: inducing first instances of speech in young children with autism. *Research in Developmental Disabilities, 24,* 58-74. Johnston, James M. (1979) On the Relation Between Generalization and Generality. *The Behavior Analyst, Fall* 1-6

Stokes, T. F. & Baer, D. M. (1977) An Implicit technology of generalization. *Journal of Applied Behavior Analysis,* 349-367.

Wheeler, J.J. Baggett, B.A., Fox, J., and Blevins, L. (2006). Treatment Integrity: A Review of Intervention Studies Conducted With Children With Autism Journal of Autism and Other Developmental Disabilities.

Wilder, Atwell & Wine (2006). The effects of varying levels of treatment integrity on child compliance during treatment with a three-step prompting procedure. *Journal of Applied Behavior Analysis, 39,* 369-373.

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