

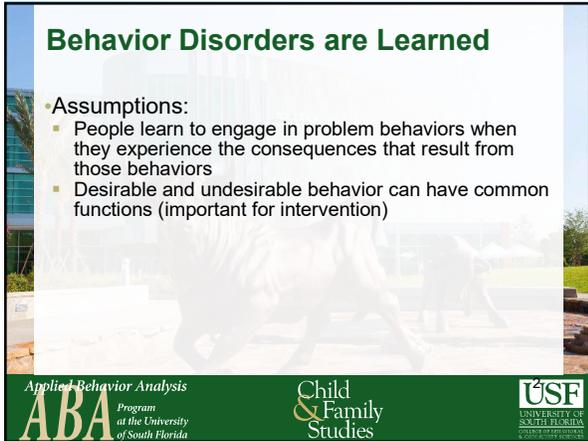
Trial-based Functional Analysis

Sarah E. Bloom, PhD, BCBA-D

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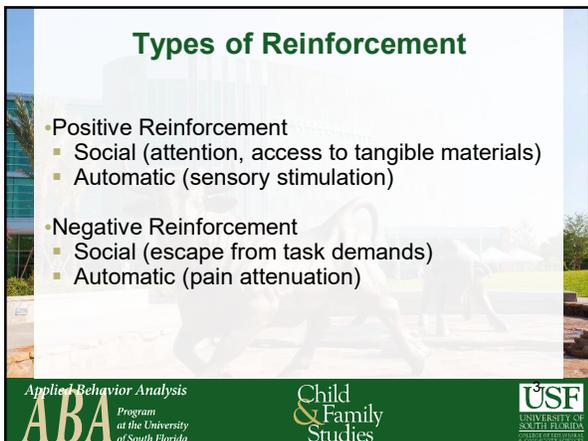
Behavior Disorders are Learned

- Assumptions:
 - People learn to engage in problem behaviors when they experience the consequences that result from those behaviors
 - Desirable and undesirable behavior can have common functions (important for intervention)

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Types of Reinforcement

- Positive Reinforcement
 - Social (attention, access to tangible materials)
 - Automatic (sensory stimulation)
- Negative Reinforcement
 - Social (escape from task demands)
 - Automatic (pain attenuation)

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Functional Behavior Assessment (FBA)

- Identify function of problem behavior
- Develop intervention
- Evaluate effectiveness of intervention
 - If effective, hooray!
 - If not effective, start over

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Functional Assessment Methods

- Anecdotal (Indirect) Methods
- Descriptive (Naturalistic) Analysis
- Functional (Experimental) Analysis

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Functional (Experimental) Analysis (FA)

- What is it?
 - Systematic manipulation of antecedent and consequent events to determine function
- Examples:
 - "Standard" FA (Iwata et al. 1982/1994)
 - Reinforcement vs. no reinforcement for behavior
 - Responding in Test condition vs Control condition
 - Sneeze ☒ "Bless You" vs. Sneeze ☒ No "Bless you"
- Pros: Empirically demonstrates behavior function
- Cons: May be complex, requires resources

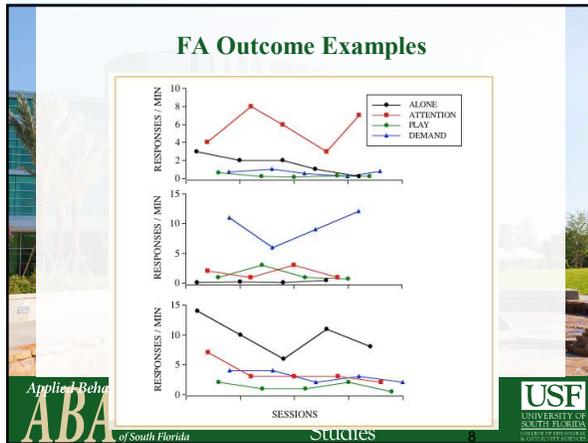
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Functional Analysis Conditions			
Condition	Antecedent	Consequent	Contingency
Attention	Th. ignores client	Th. attends to PB	Positive Sr (attention)
Demand	Th. delivers demands	Time-out for PB	Negative Sr (escape)
Alone	No stimulation	N/A	Automatic Sr?
Play	Toys and attention (NCR)	N/A	Control

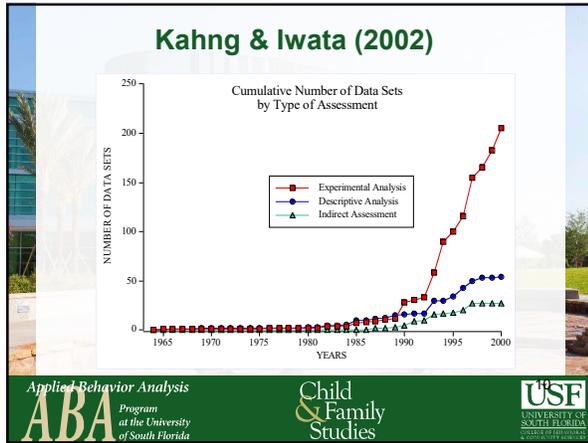
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Why?

- Many schools not using function-based approaches
- Many behavior analysts using assessments that had questionable accuracy
- Why?

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Why?

- Don't know how?
- Seems too effortful?
- No access to resources required (controlled setting)

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FA as an approach, not a procedure

- Rigidity and codification versus flexibility with essential components
- Prediction and control as foundation for intervention
- Modifications: Matching FA procedure to context

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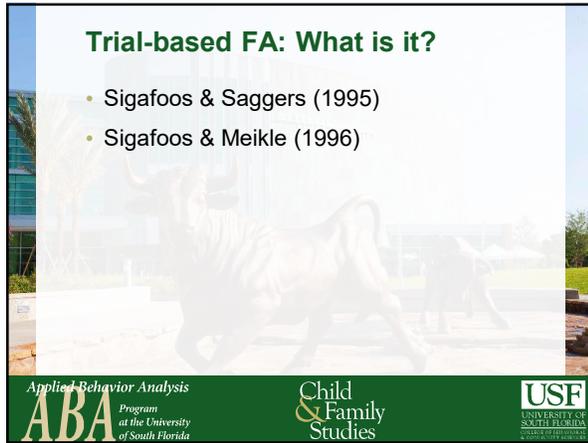
Trial-based FA: What is it?

- Sigafoos & Sagers (1995)
- Sigafoos & Meikle (1996)

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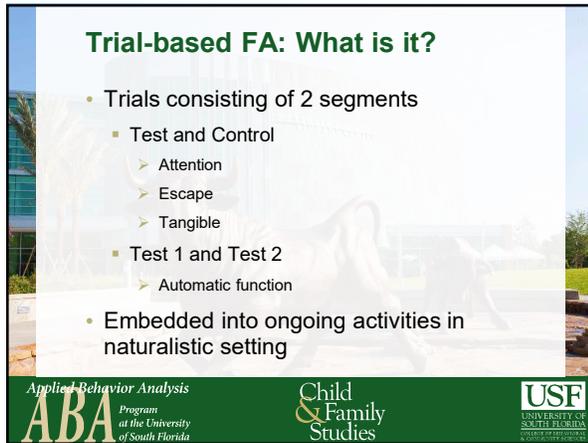
Trial-based FA: What is it?

- Trials consisting of 2 segments
 - Test and Control
 - Attention
 - Escape
 - Tangible
 - Test 1 and Test 2
 - Automatic function
- Embedded into ongoing activities in naturalistic setting

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Traditional FA versus Trial-based FA

- Traditional FA requires:
 - Continuous period of time
 - Controlled environment
- Trial-based FA requires:
 - Brief periods of time
 - Can be conducted during ongoing activities

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Model

- Embedded into ongoing activities
 - Background "noise"
 - Ease of use
 - Ease of data collection
- EO present versus EO absent
 - Kahng & Iwata (1998)
 - (Play vs. Alone as control for Escape)

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Omnibus versus Specific Control

Attention Control	Attention Test
Escape Control	Escape Test
Tangible Control	Tangible Test
Test 1	Test 2

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Trial types and sequences

	Control (up to 2min)	Test (up to 2 min)	Consequence for Target Behavior in Test
Attention	Continuous attention	No attention	Deliver attention (15 s)
Escape	No work	Continuous work	Remove materials and give a break from work (30 s)
Tangible	Access to materials	Remove Materials	Deliver tangible items (30 s)

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Trial types and sequences

	Test 1 (2min)	Test 2 (2 min)	Consequence for Target Behavior in Test
Ignore	No materials, No work, No attention	No materials, No work, No attention	No therapist response

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	Session-based FA	Trial-based FA
Format	Sessions	Trials
Conditions	Various test plus control (separately)	Specific test plus specific control for each condition (together)
Measures	Rate (responses per minute), % of intervals, etc.	% of trial segments (test vs. control AND trial type)
Structure	Sessions conducted in blocks, in succession	Isolated trials embedded into ongoing activities
Setting	Controlled	Naturalistic

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- ### Common Issues
- Student notices timer
 - Try using the second hand on a watch or counting up
 - Student accesses other materials in area
 - Place student strategically in room, block*
 - Make sure they don't get "best" stuff
 - One type of trial turns into another type...
 - Life!
 - It's ok - Just make a note of it (failed trials) and try again later
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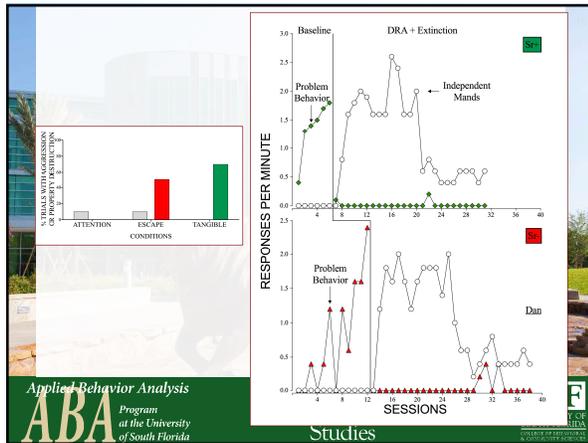
Do interventions based on outcomes reduce problem behavior?

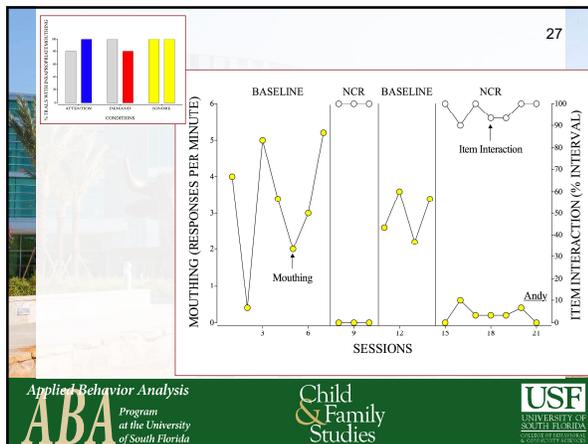
- Yes (N=5)
 - Bloom, S.E., Lambert, J.M., Dayton, E., & Samaha, A.S. (2013) Teacher-conducted trial-based functional analysis as the basis for intervention. *Journal of Applied Behavior Analysis*, 46, 208-218.
- Yes (N=3)
 - Lambert, J.M., & Bloom, S.E., & Jensen, J. (2012) Trial-based functional analysis and functional communication training in an early childhood setting. *Journal of Applied Behavior Analysis*, 45, 579-584.

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Replications & Extensions

- Kodak et al. (2013)
- McDonald et al. (2012)
- Rispoli et al. (2013)
- Schmidt et al. (2013)

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Who should we teach?

- BCBA's
- Teachers, other special ed personnel
- Group home staff/managers
- Parents?

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WAIT! – ETHICS CODE!

5.03 Supervisory Delegation.

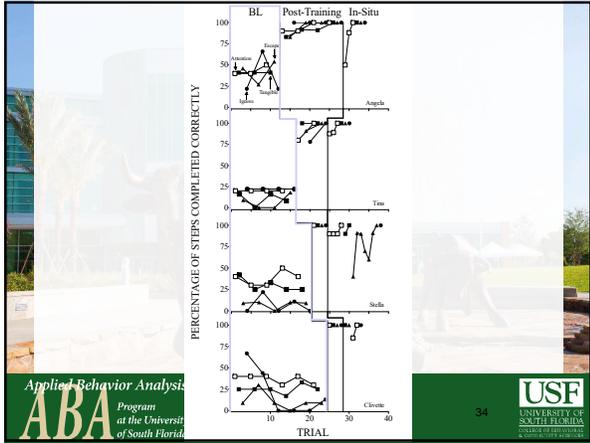
a) Behavior analysts delegate to their supervisees only those responsibilities that such persons can reasonably be expected to perform competently, ethically, and safely.

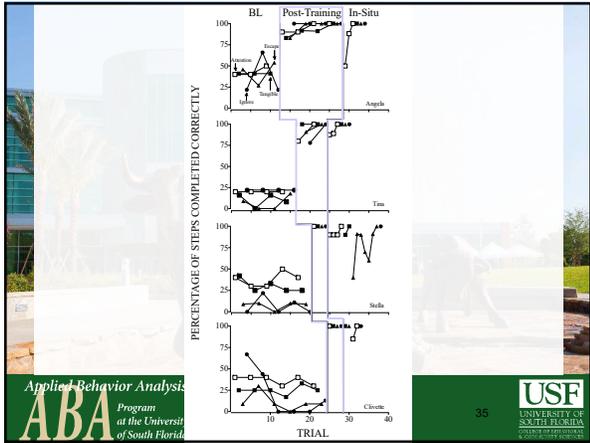
b) If the supervisee does not have the skills necessary to perform competently, ethically, and safely, behavior analysts provide conditions for the acquisition of those skills.

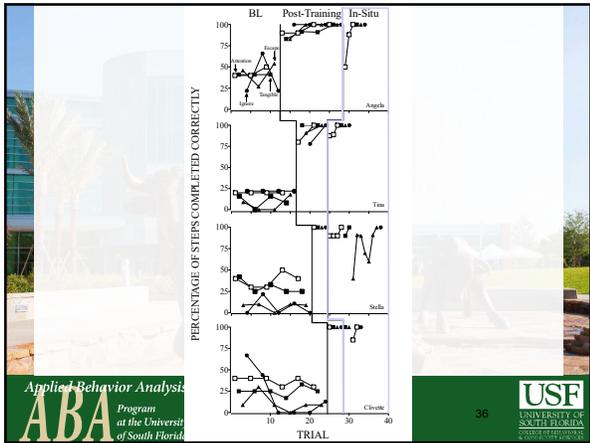
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An email from my student:

"Two parents have definitely commented on how much they are learning about their child's behavior and why problem behavior occurs. They mentioned that they understand more about why problem behavior occurs. Before the training, one parent said problem behavior occurred because of defiance, fear, and frustration. Now she says that it may be attention or escape. Her way of talking about the causes of behavior is definitely changing. The other parent is collecting ABC data for her child's problem behavior for a behavior analyst; she said that she understands what the behavior analyst is asking for because of what she learning from our study."

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Does everyone do it the same way?

- Nope

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Procedural variations

- Trial-segments: 1 min versus 2 min
 - Sigafoos & Sagers (1995), LaRue et al. (2010) used 1 min
- Trial-segment sequence:
 - Control → Test versus Test → Control
- Test for automatic function?
- # of trials?

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Weaknesses

- Correspondence with "standard" not 100% (60%-80% thus far)
 - Factors that contribute to low correspondence
- Reinforcement of PB
- Data analysis partners

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Antecedent control problem

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Contraindications

- Peer-targeted aggression
- Dangerous topographies
- Uncooperative staff
- Large # failed trials
- Poor treatment integrity, BACB Ethics code!
- Intervention delay

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Trial-based FA Benefits

- Functional analysis even with reduced resources
 - Access to continuous periods of time
 - Access to more controlled environment
- Participation and “buy in”
- Allocate resources to most challenging cases
- First step in tiered system?

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Ethics of Assessment & Intervention

- Scope of practice/matching abilities to task
- Asking for help/getting support
- Providing supports
- Risk and benefits

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When to use trial-based FA?

- Yes: Limited or no access to controlled environments
- Saves time? No? Maybe? Depends.
- Should you use with extremely high-risk behavior or peer-targeted aggression?
No.
- Should you allow unqualified or inexperienced people conduct trials independent of your supervision? No.

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Where to next?

- Dissemination
- Scale-up
- Modifications and refinements
- Applications to unusual contexts

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