















## Purpose:

- \* To discover "cause-effect relations
- \* Effects: Changes in behavior
- \* Causes: Experience

## Goals:

- \* Understanding: Why does behavior occur?
- \* Treatment: How to change behavior?
- \* Prevention: How to inhibit development of behavior?

# Learned Functions of Behavior Disorders

Most behavior problems are learned

- Behavior is acquired and maintained by consequences
- Similar consequences produce adaptive and maladaptive behavior

Major contingencies of reinforcement

- \* Positive Reinforcement (Sr+, reward)
- Negative Reinforcement (Sr-, escape or avoidance)



F	Function	Antecedent Event	Consequent Event		
	Social Sr+	Deprivation (no attention)	Attention		
	Automatic Sr+	Deprivation (no sensory stimulation)	Sensory stimulation		
	Social Sr-	Aversive stimulation (task demands)	Removal of task		
	Automatic Sr-	Aversive stimulation (pain or discomfort)	Alleviation of pain		
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A-B-C Form	( 1	Client: Farget Behavio	Antecedent-Behavior-Con	sequence (ABC) Analysis Observer:	Date:
A-B-C Form Layout Client info Time Location Antecedent: Precedes PB Behavior: Target PB Consequence: Follows PB Record Coccurrence of PB serves as occasion for recording Summary Organize A & C events into		"lient:         "arget Behavio         Location	r:Antecedents	Behavior Behavior Behavior Behavior Behavior Behavior Behavior	Date:
functional groupings					





# Some Key Terms Antecedent event: Establishing operation (EO) ♦ Alters the effects of a reinforcer ♦ EO present: Sr more valuable • EO absent: Sr less valuable ♦ Example: Food deprivation → food more valuable Antecedent event: Discriminative stimulus (S<sup>D</sup>) \* Stimulus in whose presence reinforcement is more likely ♦ Example: Traffic light → Stop/go more likely to be reinforced Consequent event: Reinforcement contingency (Sr) \* If-then relation between a response and a consequence Contingency present: Behavior maintains Contingency absent: Behavior extinguishes 15

Functional Analysis Protocol							
Condition	SD	EO	Consequence	Contingency			
Attention	S1	Th. ignores Cl.	Th. attends to beh. Problem	Positive rfmnt (attention)			
Demand	S2	Th. presents learning trials	Timeout for beh. problem	Negative rfmnt (escape)			
Alone	N/A	No stimulation	N/A	Automatic reinf			
Play	<i>S3</i>	N/A Attn: Free Demands: Non Toys: Free	N/A e	N/A Control			
				16			















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Probable Functions of Specific Behavior Disorders								
Positive Negative Reinforcement Reinforcement								
Behavior Disorder	<u>Social</u>	<u>Automatic</u>	<u>Social</u>	<u>Automatic</u>				
Aggression	+	Ø	+	Ø				
Tantrums	+	Ø	+	Ø				
Noncompliance	+	Ø	+	Ø				
Property Destruction	+	?	+	Ø				
"Stereotypy"	?	+	?	?				
SIB	+	+	+	+				
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## Setting Constraints

FA in the home?

\* Day et al. (1994), Harding et al. (2001), Nadjowski et al. (2008)

FA in typical classroom?

 Berg et al. (2007); Derby et al. (1994); Dolezal & Kurtz (2010); Frea & Hughes (1997); Grauvogel & Wallace (2010); Lang et al. (2008, 2009, 2010); McComas et al. (2000, 2003); Mueller et al. (2003); O'Reilly et al. (2009)

Trial-Based (Classroom) FA

(Bloom et al., 2011, 2013; Kodak et al., 2013; Lambert et al., 2013)

Classroom characteristics

Contiguous test-control comparison (control precedes test)

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# FA Trials Attention (no tasks present) Control: Stand near student; initiate pleasant conversation Test: Stand near student but ignore; deliver attention only following problem behavior Task Demand Control: Observe while no task demands are present Test: Deliver frequent prompts to engage in difficult work; remove work following problem behavior Alone Two consecutive test segments. Observe when student is not working, not interacting with others, and has no access to leisure items



















Why does Problem Behavior Occur at Low Rates?
Insufficient exposure to test condition

Lengthen sessions
Idiosyncratic EO or reinforcer
See retrospective review

Response class hierarchy

Do not combine PBs

Combined EOs (same maintaining contingency)

Divided attention condition

Combined contingencies (Sr+ and Sr- simultaneously)
Escape to tangible condition

Covert behavior

Hidden observation
Response product measures









f Cump	201	v of Functional Analysis Variations
Summ	nar.	y of Functional Analysis variations
Limitation		Suggestion
Complexity	-	Sorry, I cannot help you
Time	→	Extended BFA, Single-function test
Setting	>	Trial-based FA
Risk	→	All approximations and occurrences, Protective devices, Latency or Precursor FA
Low-rate	→	Lengthen sessions, combine EOs or contingencies, unobtrusive observation
A mess	→	Simplify design, separate PBs
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# Risk Management for FA FA Policy

Rational for FA

- \* Purpose: To identify causes of problem behavior
- General description: Exposure to common conditions that may influence PB

Client Protection

- \* Risk assessment: Medical evaluation, HS of injuries
- ✤ Informed consent: A must
- \* Safeguards: Periodic status checks

Oversight

- \* Approval and review: Who is in charge?
- \* Staff qualifications and competency: CBA + experience?







Charac	Characteristics of FBA Methods							
Method	Data	Analysis						
Indirect	Subjective	Structure & Function						
Descriptive	Objective	Structure						
Experimental	Objective	Function						
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# Recommended Assessment Sequence

Step #1: Clinical interview + MAS, QABF, or FAST

Step #2: Skip the DA (instead, spend few minutes learning how to interact with the client)

Step #3: Functional analysis (FA, BFA, single function test, trial-based FA, latency FA, precursor FA)

Rationale: Clinicians may do #1 well but not #2 or #3. Compare the value of watching a client for 30 min (#2) vs. seeing what a client does when ignored, when presented with demands, etc. (#3)













# Reinforcement-Based Approaches to Behavior Reduction

 #1 Eliminate the behavior s establishing operation or antecedent influence (deprivation or aversive stimulation)
 Noncontingent reinforcement (NCR)





















Behavioral Replacement: Atypical Maintenance

Typical acquisition:

- \* Choice: Adaptive behavior vs. nothing
- ♦ Prompting, shaping, continuous Sr+ (CRF, FR-1)
- ♦ Maintenance: Intermittent Sr+
- ✤ Effect of ratio schedules?
- What happens if ratio too large?

## Behavioral replacement

- Choice: Replacement behavior vs. problem behavior
- \* Ratio schedules may be detrimental
- ✤ Goal: low rates of replacement behavior
- Preferred schedules for replacement behavior?























Ci	Scoring Summary Circle the number of each question that was answered "Yes" and enter the number of items that were circled in the "Total" column.					
16.	If the person is experiencing physical problems, and these are treated, does the problem behavior usually go away?	Yes 1	No	N/A		
15.	Is the problem behavior <u>more</u> likely to occur when the person is ill?	Yes 1	No	N/A		
14.	Does the person have recurring painful conditions such as ear infections or allergies? If so, list:	Yes 1	No	N/A		
13.	Is the problem behavior cyclical, occurring for several days and then stopping?	Yes 1	No	N/A		
12.	Is the problem behavior <u>less</u> likely to occur when sensory stimulating activities are presented?	Yes 1	No	N/A		
11.	Does the problem behavior appear to be a form of "self-stimulation?"	Yes 1	No	N/A		
10.	Does the person engage in the problem behavior even when leisure activities are available?	Yes 1	No	N/A		
9.	is not required to do anything? Does the problem behavior occur even when no one is nearby or watching?	Yes 1	No	N/A		
8.	Is the person usually well behaved when (s)he	Yes 1	No	N/A		
7.	If the problem behavior occurs while tasks are being presented, is the person usually given a "break" from tasks?	Yes 1	No	N/A		
6.	Does the problem behavior occur when the person is asked to perform a task or to participate in activities?	Yes 1	No	N/A		
5.	Does the person usually fuss or resist when (s)he is asked to perform a task or to participate in activities?	Yes 1	No	N/A		
4.	Is the person usually well behaved when (s)he is getting lots of attention or when preferred activities are freely available?	Yes 1	No	N/A		
3.	When the problem behavior occurs, do care- givers usually try to calm the person down or involve the person in preferred activities?	Yes I	No	N/A		
2.	Does the problem behavior occur when the person's requests for preferred items or activities are denied or when these are taken away?	Yes I	No	N/A		
1.	Does the problem behavior occur when the person is not receiving attention or when caregivers are paying attention to someone else?	Yes 1	No	N/A		

	1	2	3	4		Social (attention/preferred items)	
	5	6	7	8		Social (escape from tasks/activities)	
	9	10	11	12		Automatic (sensory stimulation)	
	13	14	15	16		Automatic (pain attenuation)	
Reliability and validity of the Functional Analysis Screening Tool							

Total Potential Source of Reinforcement

From Iwata, B.A., DeLeon, I.G., & Roscoe, E.M. (2013). Reliability and validity of the Functional Analysis Screening Tool. *Journal of Applied Behavior Analysis*, *46*, 271-284.