

Designing and Monitoring Interventions from Functional Behavior Assessment

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Why Problem Behaviors Occur

- Problem behaviors occur because in the past they have resulted in a desirable change for the student
- Antecedent - Behavior - Consequence
- As a result of the consequence, the behavior occurs again and sometimes more frequently (reinforcement)
- Example:
 - Work presented - Student Tantrums - Sent to office (escapes work)
 - Student alone - student yells - receives attention from staff

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Why appropriate behaviors occur

- The exact same reasons
- I ask for Starbucks - you bring it - I say "thank you"
- Work presented - student completes it - receives praise from teacher
- Student alone - raises hand - teacher provides attention

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Why Problem Instead of Appropriate?

- More efficient, often more frequently reinforced
 - Student raises hand and receives attention **sometimes**; student yells and receives attention **every** time
 - Student asks for break and told "do a few more problems"; student throws a chair and gets sent to the office every time
- Problem behavior results in a richer reinforcer
 - A request results in a five minute break; a tantrum results in being sent home (Escape)
 - Talking to the teacher results in redirection back to work; running into the street results in a meeting with the principal (attention)

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Goals of Intervention

- Take control of contingencies (Motivating operations, antecedent stimuli, and consequences)
- Identify, teach, and reinforce new behaviors (Often with contrived contingencies)
- Connect new behaviors with naturally occurring reinforcers
- Fade out - allow natural contingencies to control behavior

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Function Based Intervention Process

1. Identify and define target behavior
 - 1.1. For increase or decrease
 - 1.2. From interviews and observations
2. Initiate data collection
3. Complete functional assessment
 - 3.1. Hypothesis about antecedents and consequences
 - 3.2. Confirmation
4. Develop and implement intervention
 - 4.1. Identify replacement behaviors
 - 4.2. Select and implement change procedures
5. Evaluate effectiveness

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The Function of Behavior

- Consequences – environmental changes occurring as a result of a behavior
- Determines the future rate and strength of a behavior
- The “why”
 - Every behavior serves a purpose for the person, or it is extinguished from the repertoire.

Functions Identified Through Research

- Positive Reinforcement
 - Attention
 - Tangible items or activities
 - Sensory stimulus
- Negative Reinforcement
 - Escape from attention or individual
 - Escape from demands
 - Escape from sensory stimuli

Positive Reinforcement

- Attention
 - Social interaction from peers or adults
 - May be perceived by others as pleasant or unpleasant
 - Praise or reprimands; pleased or upset
 - Interact with peers
- Tangible items or activities
 - Activity, object, edibles
 - Pizza
 - Use computer, play with a toy



Positive Reinforcement

- Sensory stimulation
 - Visual-auditory-olfactory-kinesthetic, taste
 - Singing, making noises
 - rocking
 - Staring out of the window



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Negative Reinforcement

- Escape from attention or interactions
 - Social situations
 - People – peer and adults
- Escape from demands or tasks
 - Academic work
 - Chores
 - Directives (“sit down”, or “wait”)
- Escape from sensory stimulation
 - Pain
 - Uncomfortable temperatures



Functions

Positive	Negative
Attention (Peer, adult; good, bad)	Escape from work demands
Access to preferred Activities	Escape from social situation
Access to preferred Items	Escape from aversive activity
Sensory stimulation	Escape from pain or discomfort

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Behavior in Schools

	Automatic	Socially Mediated
Positive	<ul style="list-style-type: none"> • Access to sensory 	<ul style="list-style-type: none"> • Attention • Access to tangible • Access to activity
Negative	<ul style="list-style-type: none"> • Escape from sensory discomfort 	<ul style="list-style-type: none"> • Escape from work demands • Escape from social
Almost all reinforcement in schools is socially mediated!		

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Function Based Intervention

Interventions

- Extinction
- Differential Reinforcement
- Token Economies
- Demand Fading

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Extinction

"The process by which, when a previously reinforced behavior is no longer followed by reinforcing consequences, the frequency of the behavior decreases in the future".
(Miltenberger, 2012)

*The coke machine

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Extinction Example

- Instructional demand is a math worksheet, target behavior is physical aggression
- When target behavior occurs, work does not go away. Expectation for work is present until it is completed, regardless of the time it takes

Extinction Limitations

- High response effort to implement
- Resources Required!
- Might produce extinction burst; shape new, more severe behavior
- Might produce extinction induced aggression
- Behavior will become more resistant to extinction if not implemented with integrity, or if a more valuable reinforcer is contacted
- Takes time!
- For these reasons, extinction should be combined with another procedure.

Differential Reinforcement (DR)

- An undesirable (target behavior) is no longer reinforces while a desirable behavior is reinforced
- Disable function of target behavior:
 - Target behavior does not produce the reinforcer;
 - Lower Quality of Reinforcer;
 - or, requires significantly more effort
- Enable function of a replacement behavior
 - Replacement accesses reinforcer of higher quality and requires less response effort

Options for Reinforcement

- Same reinforcer
 - New behavior (or absence of problem behavior) accesses same reinforcer
 - Raising hand = teacher attention
 - Absence of tantrum = break from work
- Competing Reinforcer
 - New behavior (or absence of problem behavior) results in a higher value reinforcer
 - Completing work = additional recess
 - Not talking out = computer time

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Guidelines for Replacement Behavior

- Replacement behavior should access the same reinforcer as the target behavior whenever possible
- Must be in the child's repertoire, or a plan developed for teaching
- If multiple functions have been identified, multiple replacement behaviors must be developed for each antecedent condition

Attention as an Example

- Target Behavior: When not receiving attention from the teacher, student will yell to gain access to the teacher's attention.
 - Disable function: When the student yells, teacher will calmly provide a redirective statement while demonstrating limited emotional expressiveness and not responding to other requests or statements
- Replacement Behavior: When not receiving attention, student will raise her hand to obtain access to teacher attention
 - Enable function: When the student raises her hand, a staff member will respond within 30 seconds by praising the behavior and providing attention as requested by the student. A positive and enthusiastic tone should be used.

Things to consider when planning differential reinforcement

- Extinction burst
- The reinforcement schedule for the replacement behavior must be at least as dense as the target behavior
 - Example: Socially mediated escape - Student tantrums 2 times per hour during instruction. How frequently should the replacement behavior access reinforcement?

Things to consider when planning differential reinforcement

- Replacement behaviors need to be directly taught
- Replacement behavior may need to be prompted, physically, verbally, or visually
- Replacement behavior may need to be shaped

Types of DR

- Differential Reinforcement of Other behavior (DRO)
- Tolerance DRO (When function is escape)
- Differential Reinforcement of Alternative or Incompatible behavior (DRA/DRI)
- DRL group contingency for peer attention

DRO

- Differential Reinforcement of Other Behavior (DRO)
- Any identified function
- Provide access to the reinforcer contingent upon the **absence** of the target behavior.

Procedure for DRO

1. Identify target behavior
2. Identify reinforcer to be used
3. Collect baseline data on the frequency of behavior
4. Identify initial behavioral standard for reinforcement (DRO Interval)
5. If the student refrains from engaging in the behavior for the interval length, provide reinforcement
6. If target behavior occurs, provide feedback and reset time.
7. Increase interval as student is successful.

Adapted from: Cipani, E. (2011) Functional Behavioral Assessment, Diagnosis, and Treatment: A Complete System for Education and Mental Health Settings (Second Edition). New York: Springer Publishing

Tolerance DRO*

- Form Differential Reinforcement of Other Behavior (DRO)
- When escape is the function
- In the presence of an aversive condition
- Provide access to the reinforcer contingent upon the **absence** of the target behavior.

Procedure for DRO

1. Identify target behavior
2. Identify the aversive condition
3. Identify reinforcer to be used
4. Collect baseline data on the duration of time student will be in aversive condition
5. Identify initial behavioral standard for reinforcement (DRO Interval)
6. If the student refrains from engaging in the behavior for the interval length, provide reinforcement
7. If target behavior occurs, provide feedback and reset time.
8. Increase interval as student is successful.

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Differential Reinforcement of Alternative Behavior

- Provide access to reinforcer contingent on the occurrence of a replacement behavior
- Target behavior does not access reinforcement, or accesses lower quality of reinforcer
- Replacement behavior must be in student's repertoire, or directly taught

Procedure for DRA

1. Identify target behavior that will produce reinforcer
2. Identify reinforcer to be used
3. Collect baseline data on the frequency of the target behavior (may also continue measure of problem behavior)
4. Develop teaching/prompting strategies
5. Implement program by providing reinforcer when target behavior occurs
6. Decrease rate of reinforcement as needed

Adapted from: Cipani, E. (2011) Functional Behavioral Assessment, Diagnosis, and Treatment: A Complete System for Education and Mental Health Settings (Second Edition). New York: Springer Publishing

Token/point systems

- The general premise:
 - A behavior needs to be reinforced
 - It is not practical to provide a desired reinforcer every time the behavior occurs
 - A “generalized” reinforcer (token/point) is provided at the time the behavior occurs
 - The tokens are exchanged for a backup reinforcer

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Benefits to students

- Proven to be effective in changing behavior
 - Increase desired behaviors
 - Decrease undesired behaviors
- Established clear expectations and a sense of “fairness”
- Focus on positives
- Build self-monitoring
- Can be faded out and allow naturally occurring reinforcers to maintain behaviors

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Benefits to staff

- Causes staff to clearly specify behaviors that are important to change
 - For self, other staff, and the student
- Increase probability that staff will provide positive consequences when appropriate behaviors occur
- Decreases the probability that staff will resort to coercive and punishing consequences
- Develops standard for consistency within program
- Builds success in the classroom; reinforces staff

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Building a program

- Identify the target behaviors to be reinforced
- Define tokens
- Identify reinforcers
- Plan exchange system
- Monitor and modify the system
- Fade out the system

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Identify Behaviors

- Precisely define the behavior(s) you want to reinforce
- Include
 - Action verbs
 - Examples (if appropriate)
 - Conditions (if appropriate: duration, frequency, intensity)
- Do not include
 - Emotional states
 - Subjective terms or opinions (appropriate, good)

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Exercise 1

- Define Behaviors

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Define Tokens

- Must be easily available
- Must be easy to administer
- Keep a record of tokens earned/spent

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Identify backup reinforcers

- Consider results of FBA
- Observations
 - Preferred activities during leisure time
 - Topics of conversation among students
- Interview with student
- Questionnaires and surveys
- Considerations
 - Items and activities may lose their value over time
 - Preferences vary among students; individualize as much as possible
 - Vary costs: more point = better reinforcers

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Activity

- Identify reinforcers (Do not do points yet!)
- Focus on activities, not toys and tangibles
- Consider access to attention for points
 - Lunch with teacher or IA
 - Visit friend in another classroom

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Plan exchange system

- Specify performance required to receive token(s)
- Make sure tokens will immediately follow the behavior, or completion of a behavior sequence
- Set values for backup reinforcers
- Establish time and place for exchange

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Specify Performance

- Clarify, if necessary specific criteria around the behavior
- Schedule: How many time must the behavior occur to receive a token? For example, every third time a student raises his hand he will receive a point. (This is not shared with the student)
- Duration: How long must behavior occur before earning a token? For example, hands and feet to self for 30 minutes.
- Product: How much work must be produced? For example, every completed assignment earns two points.

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Exercise

- Determine criteria for each behavior
- Calculate approximate maximum rate

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Set values for backup reinforcers

- Higher value items cost more points
- Graduated scale
- Must always have access to something
- Everything has a cost
- Post costs
- May be (and often should be) individualized for each student
- Inflation and Sales
- Think in terms of the maximum possible point
- Consider altering availability to maintain motivation

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Establish time and place for exchange

- How many times per day depends on student
- May need multiple times per day, especially in the beginning
- When establishing program, ensure contact with reinforcement as soon as possible.



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Activity

- Design exchange

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Modify as needed

- No program will be perfect when it's put in place
- Requires continuous modification
 - Response required for token - is the student earning what you expected?
 - Are reinforcing items maintaining their value? If not, add/change
- Is behavior changing? Monitor data

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Fading the program

- Eliminating problem behavior is the beginning, not the end.
- Programs must be faded and reinforcement transferred to the natural environment
 - From: Work completion = points = highly valuable preferred activities
 - To: Work completion = verbal praise + typical activities
 - We don't want "reinforcement junkies"
- Fading requires planning, monitoring, and precise data collection

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Fading - Increase response effort

- Some aspect of the behavior is required to increase in order to earn the token
- Examples:
 - Completion of 2 independent assignments is increased to three in order to earn the same
 - Appropriate language for 15 minutes is increased to 20
 - Points for gaining teacher attention given after three occurrences instead of 2

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Fading - Decreasing access

- Fewer opportunities to exchange points
- Examples:
 - From two opportunities per day to one
 - From 20 minutes per day to 15
 - From one opportunity per day to once every two days

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Fading - Decreasing quality of reinforcer

- Less "awesome" reinforcers available for tokens
- Transition to activities available in less restrictive settings
- Examples
 - Slowly remove computer games and transition to academic computer based activities
 - Points for outside access becomes points for a walk down the halls
 - Tokens exchanged for free time to spend with peers given no access to special activities

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Other considerations

- Activities and reinforcers ONLY accessed with tokens/ points
- Students should interact with program
 - Be a part of decision making
 - Have constant visual representation of performance
- When awarding points
 - Pair with brief statements specifying the behavior demonstrated
 - Make sure the student knows they are receiving the point
 - Consider instructing students to give points to themselves or others

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Other considerations

- Introduce new behaviors as students progress
 - Cooperating with peers
 - Problem solving
- When introducing new behaviors
 - Make a "big deal" when new, appropriate behaviors are successfully used for the first time
 - Heavy points and frequent awarding when introduced

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Demand Fading

- The removal of all instructional demands, followed by their gradual reintroduction
- Function identified as escape
- Reintroduction is planned, with reinforcement for work behavior
- Lack of demand does not mean access to preferred activities
- Often combined with extinction

Demand Fading Strengths

- Immediately reduces problem behavior
- First step of intervention may already be in place
- May prevent problem behavior
- May increase tolerance of instruction
- A good match for dangerous or large students

Demand Fading Potential Limitations

- Gradually fading in demands may be logistically difficult
- Requires expertise and planning to fade in demands
- Periods of non-instruction could be disruptive to classroom

Final Considerations

- Continue measurement
 - Close contact with relevant data to determine success
- Nothing happens overnight - give interventions time to work
- Stay consistent!
