Functional Behavior Assessment
Positive Behavior Support

Functional Behavior Assessment
The Basics of Behavior

Functional Behavior Assessment (FBA)
• FBA is a process for identifying
  ◦ Observable problem behaviors
  ◦ The contexts or routines where the problem behaviors are most likely
  ◦ The specific antecedent events within a context or routine that reliably predict occurrence of the problem behaviors
  ◦ The consequences that appear to maintain the problem behavior
The ABC’s of Behavior

• Antecedent
  - What happens before the behavior
    - Immediate or removed in time and/or place

• Behavior

• Consequences
  - Other’s response to the behavior (e.g., natural consequences, ignore, etc.)

Behavior Cycle

<table>
<thead>
<tr>
<th>Phase I: Trigger</th>
<th>Phase II: Agitation</th>
<th>Phase III: Peak/Crisis</th>
<th>Phase IV: Acceleration/ Escalation</th>
<th>Phase V: De-escalation/ Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Harder here - redirection</td>
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<tr>
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<td>Ideally this is where you intervene</td>
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</table>

5 Basic Principles

• Positive Reinforcement
  - A process that strengthens a behavior
    - The word positive has two cues associated with it. First, a positive or pleasant stimulus is used in the process, and second, the reinforcer is added (i.e., “positive” as in + sign for addition)
    - In positive reinforcement, a positive reinforcer is added after a response and increases the frequency of the response.

• Negative Reinforcement
  - Always indicates a process that strengthens a behavior
    - The word negative has two cues associated with it. First, a negative or aversive stimulus is used in the process, and second, the reinforcer is subtracted (i.e., “negative” as in a “−” sign for subtraction). In negative reinforcement, after the response the negative reinforcer is removed which increases the frequency of the response. (Note: There are two types of negative reinforcement: escape and avoidance. In general, the learner must first learn to escape before he or she learns to avoid.)
5 Basic Principles continued

- **Response Cost**
  - If positive reinforcement strengthens a response by adding a positive stimulus, then response cost has to weaken a behavior by subtracting a positive stimulus.
  - After the response the positive reinforcer is removed which weakens the frequency of the response.
- **Punishment**
  - Punishment weakens a behavior by adding a negative stimulus.
  - After a response a negative or aversive stimulus is added which weakens the frequency of the response.
- **Extinction**
  - No longer reinforcing a previously reinforced response (using either positive or negative reinforcement) results in the weakening of the frequency of the response.

Reinforcement vs. Punishment

- **Reinforcement**
  - Increasing the frequency or probability of a behavior by presenting or removing a stimulus following that behavior.
- **Punishment**
  - Decreasing the frequency or probability of a behavior by presenting or removing a stimulus following that behavior.

Summary

- **Reinforcement** increases frequency of a behavior.
  - Positive reinforcement = by adding something nice.
  - Negative reinforcement = by taking something nasty away.
- **Negative Reinforcement is not Punishment**
- **Reinforcement increases** the frequency of a behavior.
- **Punishment decreases** the frequency of a behavior.
Summary

<table>
<thead>
<tr>
<th></th>
<th>Decreases behavior</th>
<th>Increases behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Presented</strong></td>
<td>Positive punishment</td>
<td>Positive reinforcement</td>
</tr>
<tr>
<td><strong>Taken Away</strong></td>
<td>Negative punishment</td>
<td>Negative reinforcement</td>
</tr>
</tbody>
</table>

Negative Reinforcement

- Remove something aversive from the environment and increasing the probability of the behavior occurring again
- Escape - when the behavior has lead to a reduction of the aversiveness of the present environment
  - *check please*
- Avoidance - behavior has prevented the onset of an impending increase in the aversiveness of the environment
  - *not going there*
Behavior Change

- Matching Law
  - We will do the thing that gets us the most reinforcement
  - People are more likely to take less money now than more money later
- Skill versus Performance Deficit
  - Can the child perform the behavior that you are asking him/her to perform
  - Academic deficits often lead to behavior problems
- Premack Principle
  - Eat your vegetables to get ice cream

Shaping

- It make take a student a while to figure out the contingency in place
- You need to make the student aware
- To do this, successive approximations of the behavior are rewarded until the student learns the association between the stimulus and response

Schedule of Consequences

Reinforcement or Punishment

- Continuous
  - Behavior is followed by the same consequence each time it occurs
- Intermittent
  - Intermittent schedules are based either on the passage of time (interval schedules) or the number of correct responses emitted (ratio schedules)
  - The consequence can be delivered based on the same amount of passage of time or the same number of correct responses (fixed) or it could be based on a slightly different amount of time or number of correct responses that vary around a particular number (variable)
Intermittent Schedules
- Interval (time)
  - Fixed
    - The first correct response after a set amount of time has passed is reinforced (i.e., a consequence is delivered)
    - The time period required is always the same.

Intermittent Schedules
- Interval (time)
  - Variable
    - The first correct response after a set amount of time has passed is reinforced
    - After the reinforcement, a new time period (shorter or longer) is set with the average equaling a specific number over a sum total of trials.

Intermittent Schedules
- Ratio (response)
  - Fixed
    - A reinforcer is given after a specified number of correct responses
    - This schedule is best for learning a new behavior
      - This is typically called an FR-1 schedule
Intermittent Schedules

- Ratio (response)
  - Variable
    - A reinforcer is given after a set number of correct responses.
    - After reinforcement the number of correct responses necessary for reinforcement changes. This schedule is best for maintaining behavior.

Schedules of Reinforcement

Implications for Teaching

- There is only one schedule that is appropriate for administering response cost and punishment: continuous or fixed ratio of one
  - In fact, certainty of the application of a consequence is the most important aspect of using response cost and punishment. Learners must know, without a doubt, that an undesired or inappropriate target behavior will be followed by removal of a positive/pleasant stimulus or the addition of a negative/aversive stimulus
- Using an intermittent schedule when one is attempting to reduce a behavior may actually lead to a strengthening of the behavior, certainly an unwanted end result.
Implications for Teaching

• Premack Principle
  ▫ A high frequency activity can be used to reinforce low frequency behavior.
  ▫ Access to the preferred activity is contingent on completing the low-frequency behavior.
  ▫ The high frequency behavior to use as a reinforcer can be determined by:
    - asking students what they would like to do;
    - observing students during their free time; or
    - determining what might be expected behavior for a particular age group.

Schedules of Reinforcement:

Continuous Schedule of Reinforcement

• Continuous Schedule of Reinforcement (CRF):
  ▫ Each target response is immediately reinforced
  ▫ Dense ratio of reinforcement
  ▫ Use when:
    - Teaching a new skill (acquisition)
    - A behavior that occurs at a very low frequency
  ▫ Limitations:
    - CRF schedule increases the likelihood of satiation
    - Teaching students to expect reinforcement for following directions
    - Not most efficient method of maintaining behavior once it has been acquired

Thinning Schedules of Reinforcement

• Reinforcement gradually becomes available less often or in other words, becomes contingent on greater amounts of appropriate behavior
• Dense  Sparse
• Thinning Schedules should result in:
  ▫ Higher, steadier levels of responding
  ▫ Decreasing expectation of reinforcement
  ▫ Maintenance of the behavior
  ▫ Removal of teacher as a necessary behavior monitor
  ▫ Transfer of control to more natural reinforcers
  ▫ Increase in persistence in responding toward working for goals
  ▫ Ability to deliver reinforcers on a lean schedule
Natural Reinforcement

• Almost every reinforcer can be a natural reinforcer

• A reinforcer is natural depending on the situation, setting, and ages of the individual receiving the reinforcer.

Positive Behavior Support

Should be used to develop socially valid behaviors – the FBA will help identify target behaviors and appropriate interventions

Positive Behavior Support

Positive Behavior Support

Person-Centered Planning

Functional Behavioral Assessment
### Principles of PBS

- **Data-based**
  - Interventions directly linked to environmental influences and a hypothesis generated through the FBA process
- **Comprehensive**
  - Multiple interventions
  - Broad view of interventions
  - Increases in the use of alternative skills
  - Decreases in the incidence of challenging behavior
  - Improvements in quality of life
- **Proactive**
  - Teaching of alternative skills
  - Adapting the environment
- **Lifestyle enhancements and inclusive settings**
- **Reflects person-centered values**
- **Designed for use in everyday settings**

### Founding Values

- What distinguishes PBS from more traditional methods of addressing problem behavior are a direct result of the following underlying values and philosophies:
  - People are individuals and the supports they receive should be individualized (say no to canned interventions)
  - People are members of families so families should be included in decision-making (due process)
  - Social relationships reflect the quality of a person’s life. Personal relationships form the background for personal growth and development

- Self determination is important to people.
  - Expressing choices and preferences in the big and small life choices is important
- People are members of natural communities of support that play a significant role throughout the person’s lifespan
- People have the right to be treated with dignity and understanding
Popular Myths Regarding PBS
- The positive in Positive Behavior Support means we give out more rewards
  - The positive refers to a change of focus from reactive to proactive
  - Negative - constantly pointing out what the student did wrong
  - Proactive - teaching and recognizing what students are doing right
- We will no longer punish children for inappropriate behavior
  - PBS does not ignore inappropriate behavior, but seeks to find appropriate consequences that are effective in changing student behavior
- PBS uses bribes
  - Rewards are earned in PBS. Bribes are given before the desired behavior has been exhibited

PBS - Major Components
- Research-based approach used to increase quality of life and decrease problem behavior by teaching new skills and making changes in a person’s environment
  - Valued outcomes
  - Behavioral science
  - Validated procedures
  - Systems change to enhance quality of life

Valued Outcomes
- Traditionally, intervention strategies were designed to decrease problem behaviors, but they failed to consider how these interventions might affect other areas of a child’s life
- PBS strategies are only considered effective when interventions result in increases in:
  - An individual’s success and personal satisfaction
  - Enhancement of positive social interactions across work, academic, recreational and community settings
- Social Validity!
Valued Outcomes
Social Validity

- Social significance of goals
  - Are the specific behavioral goals really what society wants?
- The social appropriateness of the procedures
  - Do the ends justify the means?
  - Do the participants, caregivers and other consumers consider the treatment procedures acceptable?
- Social importance of the effects
  - Are consumers satisfied with the results - all the results, even the unintended ones

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Valued Outcomes
Example

- Ellen is a 14 year-old with severe disabilities who lives at home with two other siblings. Although Ellen likes to go out to eat, six months ago she began pinching other people on their arms and legs, sometimes causing bruises and redness. Ellen’s parent and mother were concerned because Ellen’s problem behavior angered several restaurant owners who asked that she not return to their establishments. Ellen’s behavior support team decided to intervene by avoiding all sit down restaurants and encouraging Ellen to go through the drive through to pick up dinner instead.

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Valued Outcomes
Example

| Pros                                      | Cons
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>• Ellen will not learn to reduce the problem behavior (aggression) or a valid replacement behavior (effective communication)</td>
</tr>
<tr>
<td></td>
<td>• Social validity</td>
</tr>
<tr>
<td></td>
<td>• Social significant of goals</td>
</tr>
<tr>
<td></td>
<td>• Going through the drive through instead of eating in a restaurant</td>
</tr>
<tr>
<td></td>
<td>• Social appropriateness of goals</td>
</tr>
<tr>
<td></td>
<td>• Do the caregivers consider the procedures acceptable</td>
</tr>
<tr>
<td></td>
<td>• Social importance of the effects</td>
</tr>
<tr>
<td></td>
<td>• All results, even unintended (social alienation)</td>
</tr>
</tbody>
</table>
Behavioral Outcomes

• PBS is based upon behavioral science (ABA)
  ▫ Analyzing the interaction between behavior and the environment
  ▫ Behavior is considered purposeful and under the control of environmental factors that can be changed
  ▫ Emphasize the importance of implementing intervention strategies that are effective in *natural settings*

PBS and ABA

• PBS is steeped in ABA and is based upon ABA research
  • There are differences though between PBS and ABA

<table>
<thead>
<tr>
<th>PBS</th>
<th>ABA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less experimental control</td>
<td>Tightly controlled research conditions</td>
</tr>
<tr>
<td>Systems change and person-centered planning</td>
<td>Focus is on the individual</td>
</tr>
<tr>
<td>Will sometimes use group level data</td>
<td>Only single case analysis</td>
</tr>
</tbody>
</table>

Critical Features of PBS

• Prevention
• Normalization and inclusion
• Person-centered values
• Team based approaches
• Multicomponent approaches
Prevention

- Reactive strategies are usually used instead of preventative
  - Treat the symptom not the problem
    - 'the best time to intervene with problem behaviors is when they are not occurring' (Carr et al., 1994)
  - We should strive to act before a problem has a chance to arise
    - Teach:
      - Social skills
      - Replacement behaviors
    - Designs predictable and positive environments

Prevention

- Behavior Cycle
  - Calm
    - Triggers
    - Agitation (anxiety)
    - Acceleration (defensive)
    - Peak (acting out)
    - De-escalation (acting out)
    - Recovery (tension reduction)
  - Prevention is easier and more effective
    - We often do not have time to be preventative because we are too busy reacting

Normalization & Inclusion

- Normalization
  - Regardless of abilities or circumstances, individuals should have the same
    - Opportunities at work, home and in recreation
    - Live in the same settings
- Inclusion
  - The changing of policies and systems to avoid segregated classrooms and schools for students with differing abilities
Person-Centered Values

- Problem behaviors sometimes arise as a result of placing an individual with a disability in a situation in which he/she has no control
- Positive behavior supports provide strategies for enhancing personal dignity and increasing opportunities for choice making
- Processes that emphasize person-centered values include person-centered planning

Team-Based Approaches

- Behavior does not occur in a vacuum
  - The behavior specialist should not be the only person writing the plan and developing the intervention
  - The ‘old’ way of writing plans assumed that the problem lies within the individual
  - Behavior occurs within a social network and changing a social network requires a team-based approach

Multicomponent Interventions

- One behavioral intervention will probably not be enough
  - Even for the same response class in different situations
- General and specific interventions are often necessary
- Need team collaboration for maximum effectiveness
**PBS - Steps**

1. Goal Setting and Team Building
   - Person-Centered Planning
2. Functional Behavioral Assessment (FBA)
3. Hypothesis Development
4. Intervention Planning
5. Plan Evaluation and Monitoring

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**Functional Behavioral Assessment & Hypothesis Planning**

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**Functional Behavioral Assessment**

- An effective positive behavior support plan begins with a functional behavioral assessment (FBA)
- Helps create a hypothesis about the function maintaining an individual’s problem behavior
  - Provides evidence to support, or refute, the hypothesis
- The FBA process includes using strategies based upon Applied Behavior Analysis

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FBA - components

• Indirect Assessment
• Direct Assessment
• Data Analysis
• Hypothesis Statement

FBA - Indirect Assessment

• Structured interviews with students, teachers and other adults who have direct responsibility for the students concerned
• Helps describe low incidence behaviors that are hard to observe naturally
  ▫ In what settings do you observe the behavior?
  ▫ Are there settings where the behavior does not occur?
  ▫ Who is present when the behavior occurs?
  ▫ What activities or interactions take place just prior to the behavior?
  ▫ What usually happens immediately after the behavior?
  ▫ Can you think of a more acceptable replacement behavior?

FBA - Direct Assessment

• Involves observing and recording situational factors surrounding a problem behavior (ABC analysis)
• Using data collections sheets such as component analysis or scatter plots are useful in making hypotheses regarding the function of behavior
Observational Recording Systems

- Event Recording – recording the number of times a behavior occurs
- Interval Recording – recording of whether a behavior occurs during intervals of specified time period
- Time Sampling – recording of whether a behavior occurs at the end of an interval during a specified time period
- Duration Recording – recording the length of a time a behavior occurs
- Latency Recording – recording the amount of time it takes for a student to begin the targeted behavior.

Observation System as Related to Basic Behavioral Paradigm

Event Recording

- Used with discrete behaviors
- Behaviors for which event recording is not appropriate:
  - Behaviors that occur at a high frequency (e.g., number of steps taken during running)
  - Behaviors for which one occurrence of the behavior can last for long periods of time (e.g., tantruming)

- Advantages of Event Recording:
  - Accurate
  - Easy to implement data collection system
Basic Data Sheet for Event Recording

Student: _____________________
Observer: ____________________
Behavior: _____________________

<table>
<thead>
<tr>
<th>Date</th>
<th>Start</th>
<th>Stop</th>
<th>Total Occurrences</th>
</tr>
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<tbody>
<tr>
<td>3/15</td>
<td>10:00</td>
<td>10:15</td>
<td>25</td>
</tr>
<tr>
<td>3/16</td>
<td>10:00</td>
<td>10:15</td>
<td>18</td>
</tr>
</tbody>
</table>

Event Recording with Controlled Presentations

1. Place spoon in mouth
2. Bring spoon to mouth
3. Lift spoon
4. Scoop
5. Place spoon in bowl
6. Lift spoon
7. Pour cereal in bowl
8. Place bowl on table
9. Lift bowl
10. Open milk carton
11. Place milk on table
12. Pour milk in bowl
13. Place bowl on table
14. Lift spoon
15. Bring spoon to mouth
16. Place spoon in mouth

Interval Recording

- An observation period is divided into a number of short intervals. The observer counts the number of intervals when the behavior occurs.

- Continuous and high frequency behaviors

- Partial-interval recording – the behavior does not consume the entire interval

- Whole-interval recording – the behavior consumes the entire interval
Interval Recording Data Sheet

Student: ___________________  Behavior: ______________
Date: _____________________  Time Start: ________________
Observer: __________________  Setting: _________________

(Length of Intervals in Seconds)

Time Sampling

• An observational system in which an observation period is divided into equal intervals; target behavior is observed at the end of each interval.

• Usually intervals of minutes versus seconds

• Student observed only at the end of the interval

Time Sampling Data Sheet

Student: ___________________  Behavior: ______________
Date: _____________________  Start Time: ________________
Observer: __________________  End Time: ________________

<table>
<thead>
<tr>
<th>0s</th>
<th>10s</th>
<th>20s</th>
<th>30s</th>
<th>40s</th>
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</thead>
<tbody>
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<td>X</td>
<td>X</td>
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</tbody>
</table>

O = nonoccurrence
X = occurrence

20
Similarities and Differences between Time Sampling and Interval Recording

- Both provide an approximation of how often the behavior occurs. (Neither as accurate as event recording)
- Interval provides a closer approximation than time sampling to actual occurrence of behaviors because intervals in smaller units (e.g., seconds versus minutes)
- Interval recording for short observation periods, time sampling for longer observation periods
- Time sampling easier to manage while teaching because intervals divided into longer units of time
- During interval recording the behavior can be noted and recorded during any point during the interval. During time sampling occurrence of the behavior is observed and recorded only at the end of the interval.
- For both, number of intervals in which the behavior was observed is reported not the number of occurrences of the behavior.

Coding for Multiple Students

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<th>7</th>
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Coding Form for Multiple Behaviors

- H = Hand Rolling
- F = Finger Flapping
- C = Finger Contortions
- V = High-Pitched Vocalizations

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</table>
Duration and Latency Data Collection

- Both emphasize measures of time rather than instances of behavior

- Duration:
  - Average duration – used when the behavior occurs regularly.
    Teacher measures length of the time consumed in each occurrence and then finds the average duration for that day.
  - Total duration – measures how long a student engages in a behavior during a limited time period

Basic Formats for Latency and Duration Recording Data Sheets

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Latency</th>
<th>Date</th>
<th>Time</th>
<th>Latency</th>
</tr>
</thead>
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<tr>
<td>Delivery of Sd</td>
<td>Response Initiation</td>
<td>Response Imitation</td>
<td>Response Termination</td>
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<td>Behavior initiation</td>
<td>Behavior termination</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How Much and How Often Should I Collect Data?

- How Much?
  - Trial-by-trial
  - Probe
- How Much?
  - New behavior program – every day or session until steady progress over six data points and then probe twice a week (Farlow and Snell, 1994)
Data Collection Decision-Making Process

ABA - 5 Basic Principles
- Positive Reinforcement
  - Strengthens behavior
  - Something positive is added to the environment
- Negative Reinforcement
  - Strengthens behavior
  - Something negative is removed from the environment
- Response Cost
  - Weakens behaviors
  - Positive reinforcer is removed from the environment
- Punishment
  - Weakens behaviors
  - Adds a negative stimuli to the environment
- Extinction
  - Stop reinforcing a previously reinforced response

ABC - Example
- Setting Event
- Antecedent
- Behavior
- Consequence

Extinction Burst
Sleep
Deprivation
Reading Assignment
Disruptive Behavior
Break
FBA - Data Analysis

- Once you have collected the data, the team will work together to see if they see any patterns in the behavior
  - If patterns do not emerge, more data should be collected

FBA - Hypothesis Statement

- Once the team is satisfied with the data they have collected and patterns regarding the behavior have emerged a hypothesis can be generated
- The hypothesis predicts the general conditions under which the behavior does, and does not, occur

Possible Functions

- Escape
- Attention
- Access to Tangibles
- Sensory
Linking FBA and PBS

- Turning the hypothesis(es) generated during the FBA process into a positive behavior support plan is the next step
  - Interventions should be linked to the function not chosen because they are easy to implement
- The team now meets to discuss interventions that will:
  - Help prevent the behavior from occurring
  - Teach a replacement behavior
- Will most likely need multiple interventions

Competing Behavior Diagram

- Find interventions that are directly related to the hypothesis statement
  - Serve the same function
  - Are incompatible with the problem behavior
    1. Write down the behavior or group of behaviors that are maintained by the same function
    2. Possible consequences for the desired behavior
    3. Possible interventions
    4. Select the best fitting interventions

Competing Behavior Diagram Part 1

- Antecedents
  - Related to putting dishes in dishwasher

- Problem Behavior
  - Screams and throws silverware

- Maintaining Consequences
  - Sent to room (escape from task)
When a setting event is present it reinforces the escape consequence and the power of the reinforcer for completing the task (e.g., watching television) decreases.

At this stage positive social behaviors that could be taught to replace the problem behaviors while resulting in the same consequence should be discussed.

The Competing Behavior Diagram helps focus the interventions. Devote 15 minutes to each intervention section and encourage all responses. The new behavior must be easier and more efficient than the problem behavior (Matching Law).
Things to Remember

- Matching Law
  - The relative rates of responding across two concurrent alternative schedules tend to equal the relative reinforcement rates they produce
- Skill versus Performance Deficit
- Treatment Integrity
  - Treatment complexity
  - Number of treatment agents
  - Time required
  - Materials required
  - Perceived and actual effectiveness
  - Motivation of implementers

Setting Event Strategies

- Temporarily alter the effectiveness of reinforcement (and punishment) within the environment
- Increase the likelihood that an antecedent event will trigger problem behavior
- Intervening using setting events
  - Minimize or eliminate setting events
    - Medication, sleep
    - Neutralize
      - If the setting event has already occurred, allow play with a preferred activity before the antecedent event that triggers the problem behavior occurs
  - Increase power of reinforcers
    - Temporarily increase the amount and quality of the attention that is given when the person engages in appropriate requests for attention (e.g., if the person is tired or having a bad day)
  - Promote positive interactions
    - Create 'artificial' setting events that are likely to result in positive behavior

Antecedent Strategies

- Eliminate the event
  - Complete eliminate (if possible - suitcase example)
  - Fade in an eliminated event
  - Slowly introduce reading related activities
- Make the task less aversive by:
  - Maximizing reinforcement
  - Behavioral momentum - introduce less aversive / easier tasks and then present the more difficult task
  - Premack principle
  - Be less directive
  - “do” instead of “don’t” statements
  - Modify task presentation
  - Changing how it is presented
  - Making it easier
  - Reinforcement schedules
    - Deprivation
    - Satiation
- Bridging activities
  - Downtime = problem behavior
  - Allow for preferred activity while waiting
Teaching New Skills

- When choosing a replacement behavior remember:
  - Current skill level
  - It is best to choose a behavior the individual can do, but does not do at the right time or often enough
  - Social validity
  - Function of the problem behavior
  - Choose replacement behaviors that are the most effective and least effortful
- Primary areas in which new skills will most likely need to be taught are:
  - Communication
  - Social skills
  - Scripts
  - Social stories
  - Peer aides instead of adult one-to-one aides

Social Skills - Considerations

- Embedded Teaching
  - Natural environment
  - Whole group - prevents the individual from feeling singled out
- Across settings
  - In the behavior generalizing
- Positive and negative examples
  - Too much of a good thing
- Involve significant others
  - Everyone the individual comes in contact with should be able to reinforce (and redirect) as necessary
- Use functional assessment information
  - Skills versus performance
- Clearly identify targeted adaptive behavior
  - What is the desired target behavior
  - Where does it occur
  - Where does it not occur
- Recruit peers and siblings
  - Peers can provide appropriate models
  - Siblings sometimes like to be involved and also can learn to help reinforce and redirect

Consequences for Problem Behaviors

- Previously, exclusion, suspension and detention for behavioral infractions was the norm

- Teaching...
  - ‘If a child does not know how to read, we teach.’
  - if a child does not know how to swim, we teach.
  - If a child does not know how to multiply, we teach.
  - If a child does not know how to drive, we teach.
  - If a child does not know how to behave, we...
  - teach?...punish?”

Tom Horner (NASDE President) Counterpoint, 1998
Problems with Punishment

- Result in an emotional response that not only will be associated with the procedure, but with the implementer
- Can result in a negative coercive interaction pattern that will only intensify
- What happens when you reach the maximum intensity / severity for punishment

Goal of Consequence Interventions

- Minimize reinforcement for problem behavior
- Increase reinforcement for desirable behavior
- Redirect the individual toward an alternative response
- Eliminate the consequences maintaining problem behavior
  - Extinction

Extinction

- Critical step
  - Combine extinction with teaching and reinforcing of alternative desirable behaviors
- The effectiveness of extinction is dependent on the identification of the reinforcing consequences for problem behavior (FBA)
### Extinction

<table>
<thead>
<tr>
<th>Attention</th>
<th>Access to Tangibles/Escape</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Ignore problem behavior</td>
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<td>▫ including negative attention</td>
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<tr>
<td>▫ this does not mean you are letting the child ‘get away’ with the behavior</td>
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<tr>
<td>- Provide attention for appropriate behavior</td>
<td></td>
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<tr>
<td>- Prevent access to tangibles / escape when the problem behavior is performed</td>
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<tr>
<td>- Only allow access / break after the appropriate behavior has been performed</td>
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### Differential Reinforcement

- **Differential Reinforcement of Incompatible Behaviors (DRI)**
  - Effective because the problem and appropriate behavior cannot be performed at the same time
- **Differential Reinforcement of Other Behavior (DRO)**
  - Does not teach new skills
  - Schedules are hard to implement
  - Does not reinforce naturally occurring behaviors (generalization)
  - Can reinforce a different problem behavior

### Level I: Reinforcement-Based Strategies

- Using reinforcement based procedures to decrease behavior either by contingently reinforcing behavior on a differential basis or using reinforcement in a noncontingent manner.
  - Differential Reinforcement of Low Rates of Behavior (DRL)
  - Differential Reinforcement of Other Behaviors (DRO)
  - Differential Reinforcement of Incompatible Behaviors (DRI)
  - Differential Reinforcement of Alternative Behaviors (DRA)
Level I: Differential Reinforcement of Lower Rates of Behavior

• Application of a specific schedule of reinforcement, used to decrease the rate of behaviors that, while tolerable or even desirable in low rates, are inappropriate when they occur too often or too rapidly
• 2 Versions:
  ▫ Full-Session DRL – compares the total number of responses in an entire session with a present criterion – reinforcer delivered if occurrences at or below that criterion
  ▫ Interval DRL – involves dividing a session into smaller intervals
• Example: Murray, a previously shy student, constantly talks to his classmates throughout the class period. While appropriate during group activities or free time, it is not appropriate at its current level.

Level I: Differential Reinforcement of Other Behavior

• A reinforcing stimulus is delivered contingent on the target behavior not being emitted for a specified period of time
• Three Administrative Variations:
  ▫ Reinforcement contingent on the nonoccurrence of a behavior through a specified time period
  ▫ Reinforcement contingent on the nonoccurrence of a behavior within a time period that has been divided into smaller intervals
  ▫ DRO can be used with permanent product data.
• Example: For the students who work on their book reports quietly (refrain from talking to their neighbors) for 30 minutes, they will get to attend the ice cream social at the end of the day.

Level I: Differential Reinforcement of Alternative Behavior and Incompatible Behavior

• Differential Reinforcement of Alternative Behavior (DRA):  
  ▫ An inappropriate behavior is replaced by a behavior considered more appropriate, positive, or standard.
  ▫ Alternative behavior is usually physically incompatible or functionally equivalent behavior
  ▫ Example: The student is reinforced for being “in seat” (the incompatible behavior is aimlessly wandering around the classroom)
• Differential Reinforcement of Incompatible Behavior (DRI):
  ▫ DRA procedure that reinforces a behavior that is topographically incompatible with the behavior targeted for reduction
  ▫ Example: A student with autism is reinforced for drawing pictures with the colored markers rather than stereotypically flipping them in front of himself.
The Challenge

• Finding opportunities to reinforce the appropriate behavior while ignoring the problem behavior
  - Redirecive Therapy
    • Interruption of problem behavior
      • Unobtrusively - gesture, verbal or physical cue
    • Redirection to appropriate behavior
    • Social reinforcement
      • Naturally occurring
      • Easy to generalize

Redirective Therapy

• Benefits
  - Multiple opportunities to reinforce appropriate behavior
  - This cycle emphasizes the Matching Law and uses naturally occurring social reinforcement

Opportunity to Reinforce

<table>
<thead>
<tr>
<th>Date</th>
<th>Opportunity to Reinforce</th>
<th>Behavior</th>
<th>Behavior was Reinforced</th>
<th>Behavior was Reinforced Correctly</th>
<th>Behavior was Reinforced Incorrectly</th>
<th>Behavior was Recorded</th>
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</thead>
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Student

- 12 year-old male
- Most of school day spend in an SDC class, working towards inclusion in the general education classroom
- Very little verbal skills (learning to use a PECS board)
- Received the diagnosis of autism

Reason for Referral

- The primary behavioral focus is to increase prosocial behaviors and adaptive skills at school and in home
  - The current case study was primarily focused on a home-based intervention
- Focus of this case study:
  - Currently Ethan will not leave the house without kicking and screaming, hand flapping and other stereotypic behaviors (considered to be in the same response class)
  - The current intervention was designed with the goal of extinguishing the target behaviors, while increasing the desired behavior of leaving the house in a calm, peaceful manner
Functional Assessment

- Conducted in order to determine what function the target behavior was serving (i.e., escape, attention, access to tangibles)
- Three methods can be used when conducting a functional assessment
  - Indirect
  - Direct
  - Functional Analysis

Functional Assessment
Indirect Methods

- Record review
- Interview with parents regarding what happens before they leave the house (including a description of Ethan's behavior as well as the consequences that result)
- Interview with in-home teacher regarding what happens before they attempt to leave the house (the interview was the same format as with father)

Functional Assessment Results Indirect Method

- Regional Center records show that Ethan was identified as ‘at-risk’ at 6 months of age
- At 2.5 years of age, Ethan received the formal diagnosis of autism from the regional center
Functional Assessment Results Indirect Methods - interview with parent

- The interview with Ethan’s parents suggested that Ethan engaged in the target behavior in order to either ‘escape’ from the task (going outside) or gain attention (physically put him in the car).

<table>
<thead>
<tr>
<th>Event</th>
<th>Behavior</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent opens the door and tells Ethan to go outside (regardless of a physical minor audit)</td>
<td>Ethan will cease, begin, or continue behaviors that are not typically with the door.</td>
<td>Parent indicates that when a nervous event like this almost always give it and put Ethan in the car.</td>
</tr>
<tr>
<td>Parent will perform the target behavior regardless of whether they are doing the parent will show Ethan on the PECS board where they are going.</td>
<td>Ethan will cease, begin, or continue behaviors when it is not typically with the door.</td>
<td>Parent indicates that when a nervous event like this almost always give it and put Ethan in the car.</td>
</tr>
</tbody>
</table>

Functional Assessment Results Indirect Methods - interview with in-home teacher

- The in-home teacher stated in the interview that they no longer attempt to take Ethan anywhere.
- They are not able to physically move him and he has become too aggressive.

<table>
<thead>
<tr>
<th>Event</th>
<th>Behavior</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethan’s house will open the door and parent will open the front door</td>
<td>Ethan will cease, begin, or continue behaviors when it is not typically with the door.</td>
<td>The teacher will not attempt to take Ethan anywhere.</td>
</tr>
<tr>
<td>Ethan will perform target behavior when it is not typically with the door.</td>
<td>Ethan will cease, begin, or continue behaviors when it is not typically with the door.</td>
<td>The teacher will not attempt to take Ethan anywhere.</td>
</tr>
</tbody>
</table>

Summation of Indirect Methods

- Ethan performs the target behavior across people as well as situations. He does not want to go outside regardless of where he is going. He previously was using the PECS board with increasing success.
- As it is a new behavior, both informants were asked if they could think of anything that would have started this behavior. The only possible answer came from Ethan’s parent. There was a serious car accident (lots of police and fire engines) in front of Ethan’s house approximately 3 months ago. Ethan was leaving with his parent to go to the store, and was visibly upset by the commotion. Shortly after the incident, Ethan began to exhibit the target behavior.
Definition of Target Behavior

- Based on the interviews, it was decided that the target behavior would be defined as screaming, kicking, hand flapping, or other stereotypical behavior that occurs in relation to opening the front door, putting on shoes, or using the PECS board.
- Compliance (absence of target behavior) was defined as walking to the car without being pulled or carried and going directly to the car without turning back towards the house.
- These definitions were used to guide the direct observation, but were checked for completeness and occurrence before data collection began.

Functional Assessment

Direct Methods

- Ethan is sensitive to new people and things so the videotaping is used to observe the behavior without being too intrusive.
- Videotaping: All sessions with Ethan are taped so that they can be coded and the therapist can be checked for treatment integrity.
- Scatter Plot Analysis showed that the target behavior occurred almost every time anyone tried to get Ethan to go outside.

Functional Assessment Results

Direct Methods - Scatter Plot Analysis

Scatter Plot Analysis at Ethan’s Home (Time of day was random)

<table>
<thead>
<tr>
<th>Student: Ethan</th>
<th>Behavior: screaming, hand flapping (non-compliance) when asked to go outside</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCORING: Blank = behavior did not occur</td>
<td>Shaded = behavior did occur</td>
</tr>
<tr>
<td>School</td>
<td>Destination</td>
</tr>
<tr>
<td>Enviroment</td>
<td>neutral activity</td>
</tr>
<tr>
<td>Therapy</td>
<td>Parents</td>
</tr>
</tbody>
</table>
Functional Assessment Results
Direct Methods - Descriptive Data

- The descriptive data showed that the behavior was less severe, but still present, with Ethan’s parents.
- Ethan also tends to be more prone to displaying the target behavior with his therapist.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Open Door</th>
<th>Grandparent</th>
<th>Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.5</td>
<td>0.1</td>
<td>0.6</td>
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</tbody>
</table>

Functional Assessment Results
Direct Methods - Descriptive Data continued

- The Opening Front Door antecedent produces the highest percentage of target behaviors.
- The least amount of target behaviors are observed in the presence of Ethan’s parent, regardless of antecedent.
- The most amount are observed in the presence of Ethan’s grandmother.

Functional Assessment Results
Direct Methods - Descriptive Data continued

- The escape condition produces the most calm down reactions, as well as the least occurrences of undesirable student reactions.
- This data suggests that escape if the function of the target behavior.
Intervention Plan

• The Differential Reinforcement of Incompatible (DRI) behaviors was chosen in order to extinguish the target behavior and promote desired behaviors. Walking peacefully and independently to the car is incompatible with the target behavior.
  ✓ Allows for the teaching of a replacement behavior
• The desired behavior was performed in the past, so it is in Ethan’s repertoire.
  ✓ The replacement behavior is beneficial to Ethan (he needs to be able to leave the house without force).

Intervention Plan continued

• When Ethan performs the target behavior, he will not be allowed to escape (the target behavior will be ignored). He will be redirected towards the car (physically if necessary) and then given a preferred toy.
• The access to favorite toy reinforcer will be faded to a verbal reinforcement (natural contingency), once the desired behavior has been performed 3 times in a row (without a prompt) in the presence of the access to tangible reinforcer. A more preferred toy was used as a reinforcer if he did not need prompting.

Intervention Plan continued

• A changing criterion design was used to gradually, but quickly promote the desired behavior. In order to maximize generalizability across individuals, the reinforcement plan will be used with his parent and therapists once the desired behavior is performed 3 times in a row (using the verbal reinforcer). Each person will begin with the social reinforcement phase of the intervention.
  ✓ Once the desired behavior is achieved would not want to reverse
  ✓ Not harmful to the extent that treatment cannot be delayed
• During the first implementation phase, the therapist took Ethan to school every morning. His parents did not attempt to take him anywhere until the therapist phase had been completed.
Treatment Integrity

- Each trial was carefully monitored and videotaped by an additional therapist.
- After the desired behavior had occurred using social reinforcers across all implementers (i.e., Ethan’s would go outside calmly with his therapist), periodic treatment checks were done (approximately 2 times a week).
- During implementation by the therapist, there was 100% treatment integrity.
  ✓ The extinction component of the design made it necessary for the therapist to follow through with the intervention.

Social Validity

The following three aspects of social validity were measured before and after intervention implementation.

- Social significance of the goals
- Social appropriateness of the procedures
- Social importance of the effects (are the consumers satisfied)

Social Validity

Social Significance of Goals

- Ethan’s parents took part in identifying which areas of behavior would be addressed. They felt strongly that Ethan needed to be able to go outside and get in the car unassisted, without a fight.
- After the intervention had been fully implemented, Ethan’s parents were asked again about the social significance of the goals. They made the objective decision that the progress was socially significant. This indicates habilitative validity, in that the consumer(s) view the effects of the intervention to be socially significant and valuable.
Social Validity
Social Appropriateness of the Procedures

• The intervention chosen (DRI, beginning with primary reinforcers and fading to naturally occurring reinforcers) was considered to be acceptable and non intrusive by Ethan’s parents
• The post-treatment interview revealed the same perspective. Due to the severity of the problem, Ethan’s parents shared that he would have been willing to use a more aversive/intensive intervention to remediate the problem

Social Validity
Social Importance of the Effects

• Ethan’s parents were happy with the end result. They believed that new problems would (and did) come up, but based on the success of the current intervention they felt the new problems were less daunting
• Ethan’s parents and grandparents said that they felt more confident in their abilities to remediate behavior and participate in effective interventions