**Behavior Interventions:**

Differential Reinforcement

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**Behavior Intervention**

It is important to consider that for many individuals with ASD, problem behavior is a result of a lack of knowledge of "what to do" to most effectively access reinforcement.

What types of things do we attempt to access in our daily lives?

**Getting Started: Review**

Behavior change involves the manipulation of antecedents, consequences, or both.

\[A \rightarrow B \rightarrow C\]

**Consequent Interventions**

**Reinforcement**

- Types
- Limited Access
- Amount
- Behavioral Criterion

**ABA Principle-Reinforcement**

- **Positive Reinforcement:** a "gain" function (social attention, preferred activities, tangible items, and/or sensory stimuli)
- **Negative Reinforcement:** an "escape" function (undesired activities, requests, social attention, and/or sensory stimuli)
**Preference-assessment**

Any effective behavior change program starts with the identification of possible reinforcers.

Sometimes interventionists may take the view that a student did not respond to the delivered reinforcer, it might be more beneficial to take the alternative view that the interventionist may have failed to identify an effective reinforcer.

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**Consequent Interventions**

**Schedules of Reinforcement**

- How often person gets SR+ for a correct response.
  - Continuous – Every correct response gets reinforced, periodically.
  - Intermittent – Person's correct responses are reinforced periodically.
  - When is continuous schedule best?
  - When teaching a new skill.
  - When is an intermittent schedule best?
  - When person has reached criterion and teacher wants to reduce reinforce for maintaining response only.
- Example of continuous Reinforcement:
  - Each correct response is reinforced by teacher when the response is made.

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**Consequent Interventions**

**Schedules of Reinforcement Examples**

- FR-5
  
  5-5-5-5-5-5-5-5-5 = 45 Math Problems

- VR-5
  
  4-5-5-6-4-6-5-6-4 = 45 Math Problems

- FI – 10 Minutes
  
  10-10-10-10-10-10 = 60 minutes

- VI – 10 minutes
  
  9-11-9-11-10-10 = 60 minutes

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**Consequent Interventions**

**Seven Considerations in Using Reinforcement**

- Immediacy
- Schedule
- Amount
- Pairing
- Proximity
- Labeling
- Expressiveness

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**Consequent Interventions**

**Schedules of Reinforcement**

- Ratio - Schedule reinforcement according to the number of behaviors
  - Fixed
  - Variable (average)

- Interval – The first behavior occurring after the passage of a certain amount of time
  - Fixed
  - Variable (average)

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**Consequent Interventions**

**Differential Reinforcement**

Reinforcement is delivered contingent on the occurrence of a behavior other than the problem behavior or the behavior occurring at a reduced rate & Withholding reinforcement as much as possible for the problem behavior.

(Cooper, Heron, & Heward, 2007)
**Video Example**

Big Bang Theory: Chocolate

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**Differential Reinforcement Strategies**

1. Differential Reinforcement of Alternate Behaviors (DRA)
2. Differential Reinforcement of Incompatible Behaviors (DRI)
3. Differential Reinforcement of Lower Rates of Behaviors/Responding (DRL)
4. Differential Reinforcement of Other Behaviors (DRO)

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**Differential Reinforcement**

Differential Reinforcement of Alternative Behavior (DRA)

A reinforcer is withheld following a target behavior and only delivered following a specified alternative behavior.

A teacher can use an alternative behavior to occupy the time in which the undesirable behavior occurs.

(From Cooper, Heron, & Heward, 2007)

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**Differential Reinforcement**

Differential Reinforcement of Alternative Behavior (DRA)

Reinforcing hitting a switch that elicits a recorded “I want a break” message to replace sliding out of a desk

Reinforcing correct responses to a task with attention instead of slapping for attention

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**Differential Reinforcement**

Differential Reinforcement of Alternative Behavior (DRA)

Advantages

- Simultaneously weakens the problem behavior while strengthening acceptable behaviors

Disadvantages

- Problem behavior can still occur
Functional Communication Training
A special form of DRA

FCT is a systematic practice to replace inappropriate behavior or subtle communicative acts with more appropriate and effective communicative behaviors.

When using FCT, teachers/practitioners analyze the problem behavior to determine what the learner is trying to communicate.

Functional Communication Training

Expanded Communicative Functions

- Social convention
- Greeting others, responding to one's name
- Attention to Self
- Getting the attention of others, showing off
- Reject/Protest
- Rejecting non-preferred items, indicating no
- Request an object
- Requesting access to preferred objects or activities
- Request an action
- Requesting assistance with a task

Expanded Communicative Functions

- Request information
  Requesting the name of an object, requesting clarification
- Comment
  Alerting a communication partner to some relevant aspect of environment
- Choice making
  Choosing between two or more alternatives
- Answer
  Indicating yes or not to a question
- Imitation
  Imitating a head nod for yes or no

Functional Communication Training

Reinforce the student saying help, instead of screaming when the computer freezes.

Reinforce handing a picture card to a peer requesting a toy instead of grabbing it.

Differential Reinforcement

Differential Reinforcement of Incompatible Behavior (DRI)

Reinforcing a behavior that can NOT occur at the same time as the problem behavior
Differential Reinforcement of Incompatible Behavior (DRI)

Reinforce answering questions to reduce the number of swear words a learner may be using. The learner can’t swear and answer questions the same time.

Reinforce sitting instead of wandering.

Advantages
- Student cannot engage in problem behavior and replacement behavior at the same time

Disadvantages
- May be difficult to identify incompatible behaviors

Using DRA/DRI effectively
- Select reinforcers that are powerful and can be delivered consistently.
- Consider what is doable.
- Reinforce alternate response immediately and consistently!

Differential Reinforcement of Lower Rates of Behavior/Responding (DRL)

A reinforcer is presented following the occurrence of a designated lower rate of behavior.

Used to decrease responses that need not be eliminated entirely.

(Adapted from Cooper, Heron, & Heward, 2007)
**Differential Reinforcement**

**Differential Reinforcement of Lower Rates of Behavior/Responding (DRL)**

Reinforce talking out 10 times per hour instead of a previously established rate of 20 times per hour.

Ask “What time is it?” 6 times per 30 min instead of a previously established rate of 8 times per 30 min.

(Cooper, Heron, & Howard, 2007)

**Advantage**

- Behavior change can be addressed incrementally

**Disadvantages**

- Attention given to problem behavior
- Not for use with SIB, and other potentially dangerous behaviors.
- Time consuming

(Cooper, Heron, & Howard, 2007)

**Differential Reinforcement**

**Using DRL effectively**

- Use baseline data to select response limits
  - Gradually thin the DRL schedule
  - Provide feedback to the learners concerning their performance

(Cooper, Heron, & Howard, 2007)

**Differential Reinforcement of Other Behavior (DRO)**

Reinforcement is delivered contingent on the absence of problem behavior during or at specific times.

(Cooper, Heron, & Howard, 2007)

**Differential Reinforcement of Other Behaviors (DRO)**

Reinforcement is delivered contingent on problem behavior not occurring throughout an interval of time (Interval DRO) or at specific moments in time (Momentary DRO).

(Cooper, Heron, & Howard, 2007)
**Differential Reinforcement**

**Interval DRO**
Reinforcement is delivered if NO occurrences of the behavior were observed during an entire time interval.

If the behavior occurs during an interval the interval is re-set and delays the delivery of reinforcement.

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**Example**
A third grade teacher determines a student’s response rate to be 6 times an hour; she sets her DRO interval at 5 min.

If the student exhibits the response during the interval, the timer was re-set for another 5 minutes.

If the student did not exhibit the response then the student earned 2 min of free play.

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**Differential Reinforcement**

**Differential Reinforcement of Other Behaviors (DRO)**

- **Advantages**
  - Highly Effective
  - Easy to understand
  - Can be combined with other procedures

- **Disadvantages**
  - Other non-target behavior may occur and inadvertently be reinforced
  - Must be implemented with high levels of fidelity

(Cooper, Heron, & Heward, 2007)

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**Better Ways to Measure Behavior**

- **Frequency** – how often does the problem behavior occur
- **Rate** – number of responses during a timeframe
- **Duration** – how long does the problem behavior occur
- **Latency** – how long before the student begins the problem behavior

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**Making decisions based upon data- Let’s Practice!**

- Determine current rate of behavior
- Decide on DR schedule to use
- Determine actual schedule based upon data on behavior
### Goldilocks Rule of Reinforcement

- Reinforcement schedule needs to be “Just Right”.
- Opportunity to earn reinforcement needs to be available 2 times as often as challenging behavior.
- Does not mean will actually earn – reinforcement is contingent.

### Kicks

<table>
<thead>
<tr>
<th>Data: 6 hour day</th>
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<tbody>
<tr>
<td>Day</td>
</tr>
<tr>
<td>Data</td>
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### Noncompliance- “No, I am not doing it.”

Data: one hour per day

| Day | 1 | 2 | 3 | 4 | 5 |
| Data | 5 | 8 | 7 | 9 | 11 |

### Number of times shares in class

Data: one hour per day

| Day | 1 | 2 | 3 | 4 | 5 |
| Data | 3 | 1 | 3 | 1 | 2 |

### Hits

Data: Four hours in evening at group home

| Day | 1 | 2 | 3 | 4 | 5 |
| Data | 24 | 16 | 12 | 32 | 46 |

### Shirt Tearing

Data: 6 hour day at school

| Day | 1 | 2 | 3 | 4 | 5 |
| Data | 2 | 0 | 1 | 1 | 1 |
Inappropriate Acts
Data: two hours a day for 5 days (total)

<table>
<thead>
<tr>
<th>Hits</th>
<th>Kicks</th>
<th>Steals</th>
</tr>
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<tbody>
<tr>
<td>11</td>
<td>9</td>
<td>10</td>
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In Summary

A Review
Behavior change involves the manipulation of antecedents, consequences, or both.

Differential Reinforcement Strategies
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Parting shots
The success of any behavior change program is hinged on the accurate identification of reinforcers through FBA and careful monitoring via continuous data collection and the graphing of that data.

Delivering Reinforcement
Implementing effectively

Rule 1: Cannot tell whether something is a reinforce until try it and observe effect on the behavior.
Rule 2: What is a reinforce for one person may not be for another. Individualized.
Rule 3: To be effective, a reinforce must occur during or immediately after the behavior.
Delivering Reinforcement
Implementing effectively

Rule 4: Limited Access
Rule 5: Reinforcement must be contingent if it is to be effective. RE: First this, then that.
Rule 6: When strengthening a new behavior, reinforce frequently.
Rule 7: Size of SR+ is big enough to keep student motivated, but not to big for satiation.

Parting shots

How do I select a behavior intervention?
• Consider data from the FBA.
• Consider team and parent input.
• Consider interventions that teach new skills.
• Consider the least intrusive intervention for the student and teacher.
• Consider the difficulty in conducting the intervention.

Effective Interventions are...
• Multi-element approach
  • Collaboratively designed
  • Consistent
  • Do-Able
  • Based on setting the student up for success
  • Clear & Concise: “If - then statements
  • Based upon a 3:1 ratio of positive to negative comments.

Reference List & Suggested Readings

"People don’t shape the world, the world shapes them”
(BF Skinner)