Antecedent Based Interventions

Past Literature
- Classified all antecedent-based behavior change strategies under single terms
  - antecedent procedures
  - antecedent control
  - antecedent manipulations
  - antecedent interventions

- Problem: Using the same terms creates confusion
  Can fail to recognize the different functions of each strategy

Antecedent Interventions can be Different

- Discriminative Stimuli (S0’s)
  - Evoke behavior due to past correlation with increased availability of reinforcement
- Motivational Operations (MO’s)
  - Increase behavior when an effective reinforcer is not available

- Each has different implications for how behavior change strategies should be implemented and manipulated

Discriminative Stimuli

- Signal that when a response is made reinforcement will be given

Motivating Operations

- Two types
- Establishing Operation
  - Increases the effectiveness of a reinforcer
  - Determine what an individual WANTS at any particular moment
  - Eg. Food deprivation makes food a more efficient reinforcer
- Abolishing Operation
  - Decreases the effectiveness of a reinforcer
  - Food ingestion reduces the effectiveness of food as a reinforcer

Categories for Functions of Antecedent Stimuli

- Two Groups
  - Contingency dependent
  - Contingency independent
Contingency Dependent
• Antecedent event is dependent on the consequences of behavior for developing evocative & abative effects
  – All stimulus control functions
  – Referred to as antecedent control

Contingency Independent
• Antecedent event is not dependent on the consequences of behavior for developing evocative & abative effects
• Antecedent itself affects behavior-consequence relations
• MO’s are contingency independent
• Referred to as antecedent intervention

Antecedent Interventions
• Can be used in isolation or in combination (i.e. treatment packages)
• Can decrease the effectiveness of reinforcers that maintain problem behavior
• Effects of MO’s are temporary
  – Can be used simultaneously to reduce problem behavior
  – Most often serve as a component of treatment package
  • Produce more maintaining effects

Interventions with Established Experimental Results
• Noncontingent reinforcement (NCR)
• High-probability request sequence
• Functional communication training (FCT)

Noncontingent Reinforcement
• NCR is an antecedent intervention
• Stimuli with known reinforcing properties are delivered on a FI or VI schedule independent of the learner’s behavior
• Uses three distinct procedures
  – Positive reinforcement
  – Negative reinforcement
  – Automatic reinforcement
• Identifies & delivers stimuli with known reinforcing properties

Results
• May decrease problem behavior
  – Reinforcers that maintain the problem behavior are available freely & frequently
• Functions as an abolishing operation (AO)
• Referred to as presenting stimuli with known reinforcing properties
Procedures to Use NCR Effectively

- Three key elements to enhance effectiveness
  - Amount & quality of stimuli with known
    reinforcing effectiveness of NCR
  - Inclusion of extinction with NCR interventions
  - Vary the available stimuli with NCR intervention to reduce problems of changing preferences
    - Use information obtained through Functional Behavior Analysis
    - Allows you to correctly identify the maintaining contingencies of reinforcement

Ringdahl et al. (2001)

- Suggest three procedures for emphasizing reinforcement during NCR intervention
  - Increase the delivery of stimuli with known reinforcing properties
  - Use an obviously different schedule of reinforcement at treatment onset
  - Combine DRO with the NCR treatment package

Time Schedules for NCR

- Most applications use a FI schedule but can use VI schedules
- Establishing the initial schedule is crucial
  - Can impact the overall effectiveness of the intervention
- Recommendation
  - Start with a dense FI or VI schedule
  - More effective to base it on the number of occurrences of problem behavior

Procedure to Determine the Initial NCR Schedule

- Divide the total duration of all baseline sessions by the total number of occurrences of the problem behavior (during baseline)
- Set the initial interval at or slightly below the quotient

Thinning the Time-Based Schedules

- Adding small time increments to the NCR interval
  - Best done after the initial NCR interval has produced reduction in problem behavior
- Can be accomplished using three procedures
  - Constant time increases
  - Proportional time increases
  - Session-to-session time increase or decrease

Constant Time Increases

- Increase the FI or VI schedule intervals by using a constant duration of time
- Decrease the amount of time the individual has access to the SCR stimuli
Proportional Time Increase
• Increase the FI or VI schedule time interval proportionately
  – Each time the schedule is increased by the same amount of time

Session-to-session
• Use the individual’s performance to change the schedule interval on a session-to-session basis

Additional Considerations for NCR
• Establish a terminal criteria
• Weigh the possible advantages against possible disadvantages before deciding to utilize NCR with any individual

Method II: High-Probability Request Sequence
• Referred to as high-p request sequence
• Delivery involves
  – Presentation of a series of easy-to-follow requests for which the individual has a history of compliance (i.e. high-p requests)
  – When individual complies with several high-p requests, provide individual with target request (i.e. low-p)

Protocol
• Select 2-5 short tasks with which the individual has a history of compliance
• Present the high-p request sequence immediately before requesting the target task (i.e. low-p request)
• Present the low-p request following in the same manner that all high-p requests were presented

To Use Effectively
• Select from the client’s current repertoire
• Present requests rapidly
• Acknowledge compliance
• Use potent reinforcers
High-Probability Request Sequence

• Selecting from the current repertoire
  – Behaviors selected for the high-p request sequence should be:
    • In the learner’s current repertoire
    • Occur with regularity of compliance
    • Have a very short duration of occurrence

• Presenting requests rapidly
  – High-p requests should be presented in rapid succession with short inter-request intervals
  – First low-p request should immediately follow reinforcer for high-p compliance (Davis & Reichle, 1996)

• Acknowledging compliance
  – Individual’s compliance should be acknowledged immediately
  – Use of praise

• Use potent reinforcers
  – Social praise may not be enough to increase compliance if motivation for escape behavior is high
  – Use of high-quality positive stimuli immediately following compliance may increase effectiveness of the intervention

Points to Note

• Provides non-aversive procedure for improving compliance by diminishing escape-maintained problem behaviors
  • May decrease excessive slowness in responding to requests & increase time used for completing tasks

Method III Functional Communication Training

• Establishes an appropriate communication behavior to compete with problem behaviors evoked by an EO
• Develops alternative behaviors that are sensitive to the EO’s (in contrast to NCR and high-p request sequence)
Interventions
- Typically involve several behavior change strategies in addition to teaching the alternative communication response
  - Response prompting
  - Time-out
  - Physical restraint
  - Response blocking
  - Redirection
  - Extinction of problem behavior

Functional Communication Training
- Develops alternative communication response as an antecedent to diminish problem behavior (Fisher et al., 1998)
- Alternative response produces the reinforcer that has maintained problem behavior (Durand & Carr, 1992)
- Alternative responses can take a variety of forms
  - Vocalizations
  - Signs
  - Communication boards
  - Words or picture cards
  - Vocal output systems
  - Gestures

Is A Two-Step Process
- Complete a functional behavior assessment to:
  - Identify stimuli with known reinforcing properties that maintain problem behavior
  - Use those stimuli as reinforcers to develop an alternative behavior to replace the problem behavior
- Very effective for problem behavior maintained by social attention

Protocol
- Effective use of FCT includes:
  - Dense schedules of reinforcement
  - Decreased use of verbal prompts
  - Behavior reduction procedures
  - Schedule thinning

I  Dense Schedules of Reinforcement
- Alternative communication response should produce the reinforcers that maintain the problem behavior on a continuous schedule of reinforcement at first

II  Decrease use of Verbal Prompts
- When the alternative communication response is being taught initially verbal prompts are often used
- After the response is in the individual’s repertoire the verbal prompts should be reduced and eliminated (if possible)
  - Assists in removing any prompt dependence
III
Behavior Reduction Procedures
• Effectiveness can be increased with the use of other procedures
  – Extinction
  – Time-out

IV
Schedule Thinning
• Thinning the schedule is an important part
• Should only be done after the alternative communication response is firmly in the individual’s repertoire

Schedule Thinning (continued)
• Guidelines for are NOT the same as for NCR
  – Alternative communication response must remain sensitive to evocative function of the EO to compete with problem behavior
  – Recovery of problem behavior could occur
• Hanley et al. (2001) recommended
  – Use dense FI schedule of reinforcement during initial teaching of alternative communication response
  – After the response is established, gradually thin the FI schedule
  – Suggest use of external cues to indicate when reinforcement is available

Conclusions
• Lots of factors impact antecedent- based interventions
• Can have significant impacts in changing behavior.