WORKSHOP E-3

Effective Use of Reinforcement to Reduce Challenging Behaviors

HELEN BLOOMER, MS, BCBA

Assistant Director, Upper School Director, Outreach,
McCarton School

Tracks: Challenging Behaviors, BACB

ABSTRACT:

The effective delivery of reinforcement is perhaps the least well-understood and poorly implemented in behavioral interventions in classrooms today. What defines a reinforcer varies from person to person and even minute by minute within the same individual. As such, when reinforcement-based interventions are used to reduce significantly challenging behavior it is incumbent upon the parent, profession or other service delivery person to establish those stimuli that truly function as reinforcers. This presentation will provide an overview of preference assessment, functional and appropriate delivery of reinforcement, development of self-management procedures toward the reduction of challenging behaviors.

OBJECTIVES:

1. Participants will be able to identify an operational definition for reinforcement.
2. Participants will be able to identify, and conduct, a minimum of two preference assessments.
3. Participants will be able to describe effective strategies for the delivery of reinforcement.
4. Participants will be able to identify steps to develop self-management procedures.
5. Participants will be able to identify how reinforcement can be used to reduce challenging behaviors.

Helen Bloomer, MS, BCBA

a board certified behavior analyst, was trained and affiliated for 10 years at the Children's Unit for Treatment and Evaluation at SUNY Binghamton under the direction of Dr. Raymond Romanczyk. She is the founder and former Executive Director of the Crossroads School in New York and New England. Helen has done extensive work in the field of autism and applied behavior analysis, co-authoring and presenting at numerous conferences, nationally and internationally. In addition, she produced the training video series "Bridges" which has helped families and educators throughout the world. She recently was also the Clinical Director of PAAL, adjunct lecturer at The Sage Colleges, and adjunct lecturer for Brooklyn College. Helen currently is the Assistant Director for the McCarton Upper School in Manhattan. She has been a member of the executive board for the New York State Association for Behavior Analysis (NYSABA) for 15 years.

EFFECTIVE USE OF REINFORCEMENT TO REDUCE CHALLENGING BEHAVIORS

Helen Bloomer, MS, BCBA
helenbloomer2@aol.com

Locating the Root of the Problem

FORM
- Problematic behavior
- Self injury
- Destruction
- Disruption
- Stereotypy
- Obsession
- Noncompliance

FUNCTION
- Skill deficits
- Social deficits
- Sensory challenges
- Frustration
- Other communication
- Medical (physical)
- Medical (psychiatric)

FUNCTIONAL BEHAVIOR ASSESSMENT

What Is Functional Behavior Assessment (FBA)?

- Functional behavior assessment is the systematic assessment of a particular defined behavior in terms of its function under "X", "Y" or "Z" conditions. In this way, intervention strategies that are directly related to the the assessed function may be developed and implemented.

Why Conduct a Functional Assessment?

- Functional assessment leads to effective treatments and better outcomes for learners.
- It is a professional standard and expected practice in the field.
- Many states have instituted laws and regulations mandating the use of these procedures.
- BACB Ethical Guidelines require FBA when addressing challenging behavior.
- Mandated by IDEA (1997).

Basic Assumptions

- Behavior has a purpose (i.e. It is not necessarily maladaptive for the person themselves)
- Challenging behavior often is communication
- Challenging behavior often is related to events before and after
- Sometimes challenging behavior serves multiple functions across multiple settings and people

Effective Use of Reinforcement to Reduce Challenging Behaviors

Helen Bloomer, MS, BCBA

Four Basic Functions of Behavior

- Access to social attention 

- Access to tangibles or preferred activities 

- Escape, delay, reduction, or avoid tasks 
- Internal stimulation (automatic reinforcement) 

A Short List of Possible Social-Communicative Functions

- I need help (attention/tangible)
- I don't like this (escape)
- I would rather be doing that (tangible)
- Hey, over here (attention)
- I don't understand (attention/escape)
- You're standing too damn close (tangible/escape)
- It's way too cold in here today (tangible/sensory)
- I don't feel well (tangible)
- You're supposed to do it this way (tangible)
- This is so boring (escape)
- Who are you? (tangible)
- What's in it for me? (attention/tangible)
- I can make my own choices thank you (escape)
- It's been a rough morning and I really just need a break (escape)
- Can I have a taste of that lasagna? (tangible)
- And so on ....

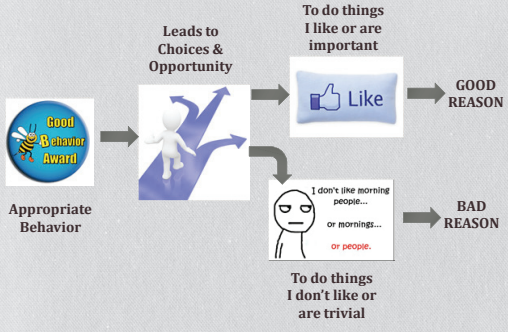
A Primer on Issues to be Consider in Behavioral Intervention with Adolescents & Adults with ASD

- The importance of the appropriate use of positive reinforcement remains significant.
- Function, function, function!
- Why do I think I have to intervene?
- To what extent does the display of the behavior limit his or her life?
- When is a "behavior" an "idiosyncrasy"?
- Environmental control as a possible reinforcer.
- Issues related to response efficiency and equivalence when identifying and developing competing, alternate communicative responses become critical.

Specific Deficits That May Predispose Individuals to Engage in Problematic Behavior

- Limited access to reinforcement
- Low tolerance to change
- Difficulties with unstructured time
- Restricted leisure skills repertoire
- Selective attention by support staff
- Confusion
- Unpredictability
- Difficulties with waiting or delaying R+
- Poor environmental congruence
- Medical or other health related concern
- Inability to exercise appropriate control over their environment

Why Should I Learn Appropriate Behavior?



A Brief Note on the Relationship Between Curriculum/Instruction & Challenging Behavior

Most of what we teach older individuals is pretty damn dull. This means that why we teach what we teach is as important as how we teach as individuals grow up.

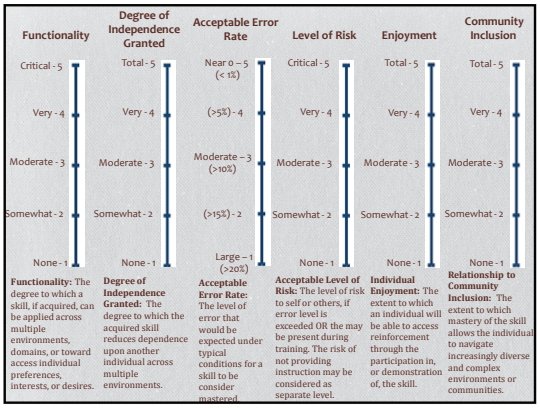
Parameters of Relevant Curriculum

The parameters of functionally relevant curriculum (i.e., adaptive behavior) include:

1. ***Context*** – Where instruction takes place
2. ***Intensity*** – How often instruction takes place
3. ***Efficiency*** – What is the response effort/equivalence associated with instruction
4. ***Transfer of control*** – Where does stimulus control lie
5. ***Value*** – Why might this skill be important to the student

Using the Following Definitions

- **Functionality:** The degree to which a skill, if acquired, can be applied across multiple environments, domains, or toward access individual preferences, interests, or desires.
- **Degree of Independence Granted:** The degree to which the acquired skill reduces dependence upon another individual across multiple environments.
- **Acceptable Error Rate:** The level of error that would be expected under typical conditions for a skill to be consider mastered.
- **Acceptable Level of Risk:** The level of risk to self or others, if error level is exceeded OR the may be present during training.
- **Individual Enjoyment:** The extent to which an individual will be able to access reinforcement through the participation in, or demonstration of, the skill.
- **Relationship to Community Inclusion:** The extent to which mastery of the skill allows the individual to navigate increasingly diverse and complex environments or communities.



A Few Indicators of a Possible Medical Correlate to Problematic Behavior

- The unexpected appearance of a new behavior or the significant increased in an existing, defined behavior
- Identifiable patterns of behavior associated with certain biological phenomena, e.g., menstrual cycle, allergies, constipation, medication reaction etc.
- Family history of specific medical conditions (e.g. gastric disorders)
- The identification of external correlates is elusive
- R/O the possibility of a secondary psychiatric diagnosis including depression, bi-polar disorder, obsessive-compulsive disorder, etc.

Associated Mental Health Concerns

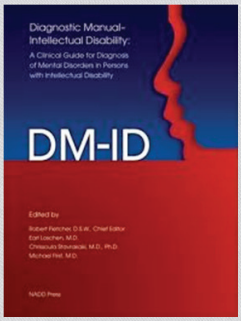
- Children & adults who have a developmental disability and a co-existing psychiatric disorder are one of the most underserved cohorts in the US. Beginning in adolescence, individuals with a developmental disability are two to four times more likely to have a psychiatric disorder than their Neurotypical peers. Accurate diagnosis is important as it sets the stage for effective treatment.

(Fletcher, et al., 2007)

Co-Occurring Disorder

- Information essential for effective MH evaluation
  - Family history of MH challenges
  - Medical history
  - Pregnancy, birth, early development history
  - Behavioral adjustment at different stages of school/life
  - Adaptive behavior and IQ testing
  - Presence/absence of other disabilities including seizure disorder
  - Current medical interventions
  - Current educational/behavioral interventions
  - Changes in diet, weight, sleep
  - Presence/absence of cycles or patterns

A Useful Volume to Consider Owning



Collecting Data!

Advantages of Good Data Collection

1. Good data determine the success or failure of your intervention strategies
2. Good data allow for evaluation of student progress or lack thereof
3. Good data allow you to be accountable to the student, his or her family, and funding sources
4. Good data allow for rapid and (more) accurate decision making
5. Deciding what data to collect and under what conditions may be challenging, however.

Examples of Everyday Data Collection

- School grades and standardized test scores
- Rate of pay per hour worked
- Your weight during a diet
- Number of texts your son or daughter sent last week
- Pills left before you need a refill
- Gross National Product
- Your home budget
- Number of hours of sleep you will get if you fall asleep before midnight
- Pairs of underwear left before you need to do laundry
- MPG, MPH, RPM
- Comparison shopping
- The list really is pretty much interminable…

There Are Different Types of Data Collection

- Frequency
- Duration
- Latency
- Cumulative
- Intensity
- Momentary time sample
- Whole interval time sample
- Anecdotal recording (which may or may not include social validity)
- And I am sure there is something I left out

A-B-C Recording

- Antecedent-Behavior-Consequence recording is a common (almost universal) method of direct observation
- Most effective when used to gather diagnostic information for later testing
- Identifies events that immediately precede and follow the target behavior
- May be made more effective when "open ended" responses are replaced with "forced choice" options derived from hypotheses

The ABC Assessment Is…

- Usually done until sufficient information is obtained
- For high frequency behaviors the ABC could be conducted across portions of the day
- Able to, at times, correlate activities with the behavior in question
- Useful in determining patterns or relationships assuming the right data are collected

A-B-C Recording (BAD)

Date	Time	Antecedent	Behavior	Consequence
7/25	1:00p	Bill was asked to clap his hands during music by Sue	Bill bit his own arm	Sue asked Bill what was wrong and tried to calm him
7/25	1:09p	Bill was asked to hit a drum during music by Sue	Bill bit his own arm	Sue again tried to calm him by rubbing his shoulders
7/25	1:55p	Bill was asked to tap his foot during music by Sue	Bill attempted to hit a classmate	Sue blocked the hit and scolded Bill

A-B-C Recording – (GOOD)

Date	Setting Events	Task	Environment	Behavior	Teacher Response	Student Got	Time/ Teacher
	❑Ill ❑Hungry ❑Toileting ❑Denied ❑Lack sleep ❑Anxious ❑Change @ home ❑ Period	❑Seat work ❑Math ❑Writing ❑Reading ❑Phys Ed ❑Start task ❑End task ❑Discrete ❑Open end ❑Work ❑Lunch ❑Break ❑Waiting	❑Quiet ❑Loud ❑Active/busy ❑Crowded ❑Teacher change ❑Task change ❑Schedule change ❑Community (describe)		❑Ignore ❑Redirect ❑Correct ❑Remove ❑Reprimand	❑Escape ❑ Attend ❑ Tangible ❑ Sensory	

IDENTIFYING FUNCTIONAL REINFORCERS VIA PREFERENCE ASSESSMENTS

Originally developed by K. Peacock, K. Yurich (Vista School), P. Gerhardt (OAR) & R. Kubina (Penn State University) and Presented at ABA 2005

Preference Assessments…

- Allow for the quantification of stimulus preferences on a case by case basis
- Allow for the a variety of stimuli to be "road tested" for potential effectiveness before incorporating them in daily programming
- Allow for expansion of preference inventories and the ranking of stimuli contained therein
- Allow for the assessment of the continued effectiveness of previously identified reinforcers
- Can be done on an ongoing or regularly scheduled basis.

Pace Preference Assessment

- Single stimulus approach based assessment
- Not powerful for producing a rank order
- Is quick to administer
- Cannot assess activities with no corresponding object
- Can be used as a screening tool for other assessments

Pace et al (1985)

Do you want this?

Fisher Preference Assessment

- Paired stimulus approach based assessment (forced choice)
- Produces a highly reliable rank order
- Time intensive
- Cannot assess activities with no corresponding object like tickling.

Fisher et al (1992)

Which do you want?

DeLeon Preference Assessment

- Multiple stimulus without replacement approach based assessment
  - Forces the student to choose between an array of stimuli
  - Each time the student chooses, the array decreases by 1
- Produces a less reliable rank order than the Fisher
- Takes less time than the Fisher
- Cannot assess activities with no corresponding object
- The student must scan the array (7 stimuli)

DeLeon & Iwata (1996)

Which do you want?

Hagopian Preference Assessment

- Single stimulus engagement based assessment
- Power to differentiate between highly preferred stimuli is limited
- Flexible administration time
- Can assess activities with no corresponding objects like tickling.

Hagopian et al (2001)

Effective Use of Reinforcement to Reduce Challenging Behaviors

Helen Bloomer, MS, BCBA

How LONG do you want any of these?

Student Profiles

- Three students: ages 4, 6, and 10
- All attend the Vista School
  - An approved private school for students with autism
  - Located in central Pennsylvania
  - Utilizes the principles of applied behavior analysis
- All low verbal students
- Identified by their teachers as students who are challenging to motivate

Procedure

Hagopian

- 2 minute (120 seconds) timing interval
- Repeated three times
- Controlled for order effects
- Time of day not reported
- Engagement is interaction, approach, or consumption with stimulus
- Appropriateness of engagement not differentiated

Vista

- 3 minute (180 seconds) timing interval
- Repeated three times
- Controlled for order effects
- Controlled for time of day
- Engagement is interaction, approach, or consumption with stimulus
- Appropriateness of engagement differentiated

Student 1

Stimuli	Mean engaged	% Engaged
Mom singing	179	99%
Crackers	176	98%
Pin toy	169	94%
Video	160	89%
Bounce on ball	153	85%
Grocery store ball	142	79%
Tickles	120	67%
Trampoline	111	62%
Shaving cream	75	41%
Soy nuts	0	0%

Student 2

Stimuli	Mean Engaged	% Engaged
Nerds candy	180	100%
Swing	180	100%
Pin toy	180	100%
Gummy candy	179	99%
Shaving cream	175	97%
Bumble ball	161	89%
Grocery store ball	159	88%
Koosh ball	141	78%
Trampoline	77	43%
Soy nuts	0	0%

Student 3

Stimuli	Mean Engaged	% Engaged
Chips	180	100%
Blues Clues radio	180	100%
Strawberries	179	100%
Classical music	171	95%
Soy nuts	137	76%
Shaving cream	121	67%
Foot rub	114	63%
Pin toy	112	62%
Grocery store ball	109	61%
Trampoline	83	46%

Rank Order	Student 1	Student 2	Student 3
1	Crackers, Mom singing	Gummy candy, pin toy, swing, nerds, shaving cream	Chips, strawberries, Blues Clues radio
2	Pin toy		Classical music
3	Video	Bumble ball, grocery store ball	
4	Bounce on ball		
5	Catch ball	Koosh ball	SOY NUTS!
6			
7	Tickles		Shaving cream
8	Trampoline		Grocery store ball, pin toy, foot rub
9			
10			
11			Trampoline
12	Shaving cream	Trampoline	
13			
14			
15			
16			
17			
18			
19			
20	Soy nuts	Soy nuts	

Match R+ with Function of Behavior

ATTENTION MAINTAINED BEHAVIORS

- Quality of attention the individual is seeking?
- Any attention does the trick?
- Peer attention?
- Adult attention?
- Undivided attention?
- Physical attention?
- Certain person's attention?
- Duration of time individual can go without attention & exhibiting behavior?

Depending on Your Answers…

- High intensity attention?
  - ***Give rich schedule regardless of behavior & praise with much animation***
  - ***Try getting individual to request game/activity that results with attention***
- Peer attention?
  - ***Set up class-wide contingencies to reduce attention to that individual***

Match R+ with Function of Behavior

ESCAPE-MAINTAINED BEHAVIORS

- What specifically is the individual escaping?
- Is the demand too challenging?
- Is the demand too boring?
- Is the demand social?
- Is the demand centered around non-preferred materials?
- Is the demand specific to a certain person?
- Does the demand go on too long?
- Is the demand associated with a certain type of stimulation?

Depending on Your Answers...

- Task too boring?
  - ***Try fun materials, implementing goals in order of individual's choice, short durations of task,***
  - ***Teach to appropriately ask for new task***
- Task too social? Associated with certain stimulation?
  - ***Shape appropriate behavior by taking baby steps as the individual can tolerate***
  - ***Fewer people, smaller room, shorter duration, etc.***

Match R+ with Function of Behavior

Access to Objects & Activities Maintained Behavior

- What activities or objects does the individual get from the behavior?
- Does the behavior occur when its time to give up access?
- Does the behavior occur when the individual needs to wait for access?
- Does the behavior occur when the individual needs to share?
- Does the behavior occur when the individual needs to take turns?

Depending on Your Answers…

- Taking turns? Sharing? Giving up item?
  - ***Possibly give more access to item throughout day***
  - ***Provide signal of time left before giving up item***
  - ***Teach to request more time***
  - ***Provide visuals for number of times or duration with item***
  - ***Provide potent reinforcer for sharing***

Match R+ with Function of Behavior

Automatic Reinforcement Maintained Behaviors

- What exactly is the sensation that the individual is obtaining with the problem behavior?
- Is the behavior related to a medical problem?

Can be trickiest to tackle!

Depending on Your Answer…

- Automatic reinforcement of sensation?
  - ***Try behavior yourself if possible to try to feel it***
    - ***Vestibular stimulation – rocking, spinning***
    - ***Visual input – watching hand-flapping, running back & forth by fence***
    - ***Pleasurable textures – rubbing soft materials, etc.***
    - ***Meditative state – humming, rocking,***
    - ***Reliving pleasurable experience – self talk, singing***
  - ***Self injury***
    - ***Endorphins – rush feeling***
  - ***Try to id a more appropriate source to provide same stimulation***