

# Teaching Communication at Home

August 4, 2015

National Autism Conference  
Heather Forbes MA, CCC-SLP, BCBA  
Katrina Mellott, MA, BCBA



Pennsylvania Training and Technical Assistance Network

## PaTTAN's Mission

The mission of the Pennsylvania Training and Technical Assistance Network (PaTTAN) is to support the efforts and initiatives of the Bureau of Special Education, and to build the capacity of local educational agencies to serve students who receive special education services.

## PDE' s Commitment to Least Restrictive Environment (LRE)

---

Our goal for each child is to ensure Individualized Education Program (IEP) teams begin with the general education setting with the use of Supplementary Aids and Services before considering a more restrictive environment.

---

ABA and ABCs

## ABA

**Applied Behavior Analysis (ABA)** is a science and a discipline devoted to understanding and improving human behavior.

Premise: Behavior serves a function, and that function lies in the environment.

## Why Use ABA?

ABA is currently the most evidence-based framework for autism intervention.

- "Interventions based on principles of ABA have a track record of effectiveness when incorporated in well-designed programs for individuals with ASD" (NAC Standards Report, 2015).
- "Thirty years of research demonstrated the efficacy of applied behavioral methods in reducing inappropriate behavior and in increasing communication, learning, and appropriate social behavior" (U.S. Surgeon General, 1999).

**Behavior** is anything a person does

- Observable
- Measureable (can count it or time it!)

## ABC Analysis

- **Antecedent** is a stimulus or event that occurs immediately preceding a behavior.
- **Behavior** is a person's interaction with the environment.
- **Consequence** is a stimulus or event that occurs immediately following a behavior.

Antecedent	Behavior	Consequence
Something interesting happens	Look in that direction	Seeing the Event
Need to go out and seeing a door knob	Turning the knob	The door opens
Driving and the traffic light turns red	Depress brake pedal	Car stops
Spoon on table	Reaching toward it	Touching spoon

## Consequences

**Reinforcement** is a consequence that increases the future probability of a behavior.

Improving conditions!

The important consequences are those that occur immediately after the behavior.

- You don't know if something is a reinforcer until you see its effect on the behavior.
- You reinforce behaviors, not people!

### Properties of Reinforcement (VIRME)

- Value
- Immediacy
- Rate
- Magnitude
- Effort

## Two Types of Reinforcement:

- Positive: Adds something (**increases** future probability)
  - ask for a cookie, get a cookie
- Negative: Subtracts something (**increases** future probability)
  - dinnertime, child cries & doesn't sit at table

## Identifying Potential Positive Reinforcers

- Observations
- Assessments/Inventories
- Formal preference probes

**Punishment** is a consequence that decrease the future probability of a behavior.

Worsening conditions!

Two types: Positive and Negative

**Extinction** occurs when a behavior that has been reinforced in the past is no longer reinforced, which results in the behavior fading.

‘Extinction burst’ is when the behavior increases in intensity and variety before it fades.

## Antecedent

---

**Motivation** is an antecedent that affects the value of the reinforcer.

When things are of value, people are more likely to do something to get them.

Motivation is the result of conditions in the **environment**. These conditions include:

1. Satiation and deprivation or
2. Other changes in conditions.

Motivation for things like food and drinks are controlled by processes of satiation and deprivation. This motivation is unlearned.

- Satiation: having too much of something
- Deprivation: not having enough of something

### Videos: Unlearned Motivation

1. Oxygen deprivation
2. Salt (water deprivation)
3. Water satiation

Motivation for other items (things that are learned over the course of a child's life) are controlled by specific changes in the environment.

Not all motivation is controlled by satiation and deprivation.

When something is presented that makes something else valuable, it is called a **conditioned motivative operation – transitive**.

CMO-Ts are learned through experience.

Video: Bubbles in bottle with a lid too tight  
CMO-T

### Other examples of CMO-Ts

- Needing to remove a flathead screw makes a screwdriver valuable
- Being asked to sign your name makes a pen valuable
- Having a dollhouse with no toy furniture makes the furniture valuable

When the presentation of an event makes the removal of that event valuable, it is called a **Condition Motivative Operation-Reflexive.**

CMO-Rs are learned and are often thought of as warning signals.

Video: “No Work, No Monkey” CMO-R

## Other examples of CMO-Rs

- Seeing a police car increases the value of slowing down
- The teacher's approach increases the value of getting a task out of the way
- Someone looking at you may also lead to escape as valuable

The reinforcer in each case is getting rid of the warning signal.

## Verbal Behavior

## Verbal Behavior

Premise: Communication is behavior. It's something we do that can be observed and measured.

- Verbal behavior is controlled by antecedents and consequences in the environment.
- Verbal behavior is reinforced by/through other people. (It's social.)

[Video: Verbal Operants](#)

## Verbal Operants

Verbal Operant	Antecedent	Behavior	Consequence
Mand	Motivative Operation (wants cookie)	Verbal behavior (says "cookie")	Direct reinforcement (gets cookie)
Tact	Sensory Stimuli (sees or smells cookie)	Verbal behavior (says "cookie")	Non-specific reinforcement (gets praised, for instance)
Intraverbal	Verbal stimulus (someone says: "What do you eat?")	Verbal behavior (says "cookie")	Non-specific reinforcement (gets praised, for instance)
Echoic	Verbal Stimulus (someone says "cookie")	Verbal behavior: repeats all or part of antecedent (says "cookie")	Non-specific reinforcement (gets praised, for instance)

## Other Relevant Operants

Operant	Antecedent	Behavior	Consequence
Receptive (Listener Responding)	Verbal stimulus (someone says "touch cookie")* <small>*in this case the cookie must also be present: all receptive discriminations involve 2 S<sup>D</sup>s</small>	Non-verbal behavior (child touches cookie)	Non-specific reinforcement (gets praised, for instance)
Imitation Point to point correspondence <u>a.k.a. Mimetic</u>	Non-verbal behavior (person performs an action, etc.)	Non-verbal behavior with point to point correspondence (person imitates same action)	Non-specific reinforcement (example: praise; 'you' re right!', "great job!" high five, pat on back, etc.)
Match to sample	Non-verbal behavior (presentation of stimuli)	Non-verbal behavior (in presence of one stimuli, a second stimuli is selected with shared properties).	Non-specific reinforcement (example: praise; 'you' re right!', "great job!" high five, pat on back, etc.)

## Activity: Identify the Verbal Operants

As a result of:	One has a tendency to:	This is a:
Seeing banana	Say "banana"	
Wanting a banana	Say "banana"	
Hearing someone say "banana"	Say "banana"	
Hearing someone say "a yellow fruit"	Say "banana"	
Being told to get banana	Grab a banana	

As a result of:	One has a tendency to:	This is a:
Seeing a grape	Say "grape"	
Hearing a horn	Say "truck"	
Wanting a push on the swing	Say "push"	
Being told to "stand up"	Standing up	
Someone says "door"	Say "door"	
Someone says "door"	Say "keyhole"	
Smelling smoke	Say "barbeque"	
Seeing a cloud	Say "white"	

As a result of:	One has a tendency to:	This is a:
Wanting to buy a book	Ask "where's my wallet?"	
Seeing banana	Say "yellow"	
Hearing "banana"	Say "yellow"	
Hearing "cowboy"	Say "boy"	
Being presented with a task	Say "later"	
Seeing teacher	Say "go away"	
Seeing teacher while getting ready for an activity	Say "can I have a marker?"	
Seeing teacher	Say "teacher"	
Hearing "teacher"	Say "teacher"	

## Teaching Communication: Pairing with Reinforcement

**Pairing** involves delivering reinforcers to the child for “free.”

- Pairing is a critical prerequisite to all communication training.
- The goal of pairing is for the child to like to be with you and to readily approach you.

- You want to become a signal for reinforcement, not a warning signal.
- Be sure this happens **before** you place instructional demands (ex. identifying body parts, imitation, doing activities, etc.).

Video: Pairing

## Steps to Pairing

### **I. Identify the child's reinforcers**

Identify objects, food items, and activities that are fun or reinforcing for the child through assessment inventories, and/or observation.

## 2. Sanitize the environment

Limit the availability and visibility of your child's most valuable items/activities (positive reinforcers).

Every time a fun item appears, it is because **you** made it available, thereby making you more valuable.

## 3. Approach the child with something fun

Approach the child with a reinforcer in an outstretched hand.

Make it obvious that you are approaching with something fun.

#### **4. Pair your voice and the environment with reinforcement**

Say the name of the reinforcer when you deliver it to the child! Keep your voice fun and pleasing. Pair in different learning environments.

#### **5. Make sure that what you are offering is more desirable than the child's current situation**

Do not interrupt the child's fun to do something less reinforcing.

## **6. Make activities *more* fun**

When a child is playing with a toy or engaged in a fun activity, do things that make it more enjoyable. Try to create novel ways to interact with the child and his reinforcer so the child sees the benefit of having you join in.

## **7. Avoid delivery of reinforcers when problem behavior is occurring.**

Exception: if safety is a concern

## Pairing with Peers

Pairing with reinforcement is a key first step to all social behavior, including peer-to-peer interactions.

Goal in peer-to-peer pairing is for the child to readily approach peers.

This process will involve all the same steps described, with a few key considerations.

### Considerations when Peer-to-Peer Pairing:

- Peers may not be as willing to share reinforcers. You might strategically choose to pair peers who already have sharing behavior established, or you may need to specifically teach peers to deliver reinforcers to the child.
- Another option is to use reinforcers that are valuable to the child being trained, but not to the peer(s).

## Teaching Communication: Manding

Teaching children to make requests is a **central** focus of Verbal Behavior training

Video: Mand training video (parent)

## Why Start with Mands?

- Mands benefit the speaker. They allow the child to control the environment.
- Mands are functional!
- Mand training is inherently “interesting” to the child. It maintains engagement.
- Mands are key to communication initiation.
- Mand skills typically result in fewer problem behaviors.
- Mand skills develop early in child development and should naturally be a part of early language training.

[Video: Types of Mand Training](#)

Mand training may often sound easy, but is a technical process and can be very complicated. Mand training skills are harder to teach new staff than intensive teaching skills.

## Mand and Motivation

A mand is controlled by **motivation**. One can not ask for something unless the thing is wanted.

When teaching a child to mand, teachers must always ensure that the child wants the item or event that is the focus of training.

Remember: motivation (or “wanting something”) is the result of events in the environment!

We must either capture or contrive motivation.

- Capture: Observe what the child wants or needs at any given time.
- Contrive: Strategically "sabotage" the environment (CMO-T)

Mand training is all about taking advantage of the environmental control of motivation.

We can also maintain motivation for reinforcers by:

- Varying reinforcers used
- Varying the way reinforcers are delivered
- Stop delivery **before** it loses value
- Avoid using too much at any delivery

Before running any mand trial, always check for motivation.

If a student says something—not to obtain the item but for generalized reinforcement (non-specific)—the response is likely a **tact**, not a mand.

## Selecting Mand Targets

Before beginning mand training, establish a list of items that can be used for teaching. Best items:

- Can be delivered quickly
- Are consumable or allow only a brief period of contact
- Can be teacher controlled
- Are usually strongly motivating
- The sign or word used to mand for the item is not too hard to produce

[Video: Mand Target Selection](#)

## Mand Training Guidelines

Begin formal mand training when the child readily approaches adults and readily accepts reinforcers.

- Be sure you have consistent motivation for several items, and enough items or activities as reinforcers. Keep a list of reinforcers that can serve as future mands to be trained.

- In some cases, it may be necessary to condition other items and/or activities as reinforcers.

Video: conditioning tube video

- During sessions, have a variety of reinforcers available across categories (toys, edibles, actions) that include:
  - Items you are targeting
  - Mastered items
  - Future targets (for conditioning; just deliver and say the name)
- Make sure you run enough easy trials (mastered mands or free delivery)

- You will need to teach more than one mand right from the start.
  - Generalized mands can be a problem: avoid teaching *more*, *please*, and *help*.
  - Typically work on 3-5 mand targets at one time.
- Before training a specific mand, you want to determine response **form**— how the child will ask for what he/she wants.

Form	Function
• Vocal	• Verbal (Saying Water)
• Non-Vocal	• Verbal (Signing Water, handing over a picture of water, writing)
• Vocal	• Non-Verbal (non-social vocal noises such as coughing)
• Non-Vocal	• Non Verbal (crossing legs)

Types of response forms include vocalization, sign language, picture exchange, writing, and various augmentative devices.

A good rule of thumb is to always consider vocal first.

## Mand Errorless Teaching Procedure

Video: [Teaching a Vocal Mand](#)  
[Teaching a Signed Mand](#)

## Mand Errorless Teaching Procedure

First step in all mand trials is a check for motivation!

Teach mands that have not been previously mastered **errorlessly**.

1. Provide an immediate prompt to gain desired response
2. Use a transfer trial to fade the prompt

## Considerations for Prompts:

- Skills in other verbal operants
  - For a strong “tacter,” use tact prompts.
  - For a strong echoer, use echoic prompts.
  - For a strong imitator and poor echoer, use imitative prompts
  
- Strength of motivation
  
- Difficulty of response form requirements

## Mand transfer trials can be done in two ways:

1. After the prompted response, move the reinforcer closer and wait 2 seconds. If the child responds again, deliver the reinforcer.
  
2. After the prompted response, deliver a *little bit* of reinforcer. Then re-present mand opportunity and wait 2 seconds. If the mand is emitted, deliver *more* reinforcer than before.

Video: [Mand Transfer Trial](#)

If mand transfer occurs before reinforcement is delivered, it is called a **within trial transfer**.

If mand transfer occurs after reinforcement is delivered, it is called a **second trial transfer**.

## Troubleshooting Errorless Teaching

- When the response form is not clear enough to be understood, we need to use systematic shaping procedures to differentially reinforce closer approximations of the targeted form.
- If prompts cannot be eliminated on a transfer trial, two options are:
  - Faded Prompt Transfer Trial
  - Repeated Prompt Procedure

Video: [Shaping, prompting, and fading](#)

## Mand Error Correction

Types of errors include:

- Wrong response  
 Child says “horse” when motivated for a zebra toy.  
 Child says “cut” when motivated for scissors.  
 Child says, “You want to jump!” when motivated to jump on a trampoline.
- Scrolled response/chained response/self-correction  
 Child scrolls through multiple signs  
 Child says “horsey neigh” when motivated for a horse toy.  
 Child says “zebra...horse!” when motivated for a horse toy.

## Mand Error Correction Procedure

1. Remove the reinforcer  
 Error responses do not contact reinforcement
2. Signal that reinforcement is not available  
 Remove eye contact, angle body slightly away from child  
 If necessary prompt child’s hands to neutral position for signers
3. Pause (for 3 to 10 seconds, depending on variables like motivation and strength of extinction effects)  
 Ensures error/scroll does not contact reinforcement
4. Re-present item and immediately prompt
5. Run transfer trial (if appropriate)

- Remove Reinforcer
- Neutral Hands (if necessary)
- Pause
- Re-present with Immediate Prompt
- Transfer

Video: [Mand error correction](#)

## Manding with Peers

Similar to procedures for manding with adults, you cannot begin peer manding until a child is readily approaching peers and accepting reinforcement from them.

It is important that these early peer mands are consistently reinforced!

### Considerations for peer-to-peer manding:

- Begin with simple mands for items and activities
- Avoid generalized mands like “my turn”
- Don’t be tempted to skip to complex peer mands too soon!

## Mand Data

Keep two kinds of data on mand training:

- Mand acquisition  
(total number of mands mastered)
- Mand frequency  
(rate of mands per minute)



## First Trial Probe Procedures

Cold probe mand trials always involve a check for motivation.

The probe involves two steps:

1. Probe for motivation  
MO/No MO
2. Probe for response  
Yes/No

- Score probe data on the child's first opportunity to emit the target mand during the day.
  - If the child shows no motivation for the target reinforcer, you cannot score probe data for that day.
  - Only score probe data on mand trials that have not been previously prompted that day.
- If the mand is correct 3 days in a row on first trial, the targeted mand is considered **mastered**.

Keep a list of target mands, mastered mands, and potential future mands to be trained on a **skill tracking sheet**.

Student: Tommy		Mastery Criteria: 3 consecutive yes	
<b>Skill Tracking Sheet</b>			
Skill: <u>Mand for items/activities present</u>			
	Target	Date introduced	Date Mastered
1	Candy (sign)	3-2-09	3-5-09
2	"Tip" (Chip--vocal)	3-2-09	3-6-09
3	Book (vocal)	3-5-09	3-11-09
4	Tickle (sign)	3-11-09	3-17-09
5	Bug (ladybug wind up--vocal)	3-17-09	
6	iPad (sign)	3-17-09	
7	Penguin (wind-up--sign)	3-17-09	
8	Spin light		
9	Trampoline		
10	Play-doh		
11	Movie		
12	Cookie		
13	Water (spray bottle)		

Conclusions

## Mand training can go quickly or slowly

- The rate of mand acquisitions can vary depending on the student
- The rate of mand acquisition can vary across reinforcers used

## More Complex Manding

Remember, mand training does not end with teaching to ask for things that are immediately present or offered. Some other mand skill programs:

- mands under control of MO
- mands for actions
- mands for attention
- yes/no mands
- multiple word mands
- mands for information

## General Mand Sequence Chart

1. Pairing (critical throughout)	10. Mand for information
2. Mand with item or activity present	11. Mand with prepositions
3. Expand mands for items and actions <ul style="list-style-type: none"> <li>• Increase number (100+)</li> <li>• Generalize across instructors, settings, and examples</li> </ul>	12. Mand with pronouns
4. Mand for missing items and activities (solely under control of MO)	13. Mand for peer to participate in activity
5. Mand for listener contact/attention	14. Politely mand to remove aversive
6. Peer-to-peer mands (simple)	15. Mand for future events
7. 2-component mands (verb + noun; adjective + noun; verb + adverb; verb+ verb; noun + noun)	16. Increase MLU to sharpen listener control
8. Mand for others to attend to specific stimuli (items, activities, etc.)	17. Give direction on how to do something; mand for attention to intraverbal behavior; conversational mands
9. Mand with "yes/no" to a question	

Always keep mand training fun!



**Contact Information** [www.pattan.net](http://www.pattan.net)

Heather Forbes  
[c-hforbes@pattan.net](mailto:c-hforbes@pattan.net)



**Commonwealth of Pennsylvania**  
Tom Corbett, Governor

**Pennsylvania Department of Education**  
William E. Harner, Ph.D., Acting Secretary

Carolyn C. Dumaresq, Ed. D., Deputy Secretary  
Office of Elementary and Secondary Education

John J. Tommasini, Director  
Bureau of Special Education