

Mand Training Basics

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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.

Why are mands so important?

- Functional
- Improved quality of life
- Developmentally critical
- Social skill - Successful social relationships almost always involve mands.

Verbal Behavior

- Verbal Behavior – Behavior that is reinforced through the mediation of another person's behavior
- Simple to complex forms

Video of Verbal Operants

The Verbal Operants

- Speaker skills:
 - Mand (requesting)
 - Tact (labeling)
 - Echoic (repeating what someone says)
 - Intraverbal (answering questions, fill-ins, word associations)
- Listener skills
 - Listener responding (receptive)
 - Following directions
 - Selecting things that are named

What is a mand? Common examples:

- Requesting
- Asking for something
- Asking a question
- Demanding
- Inquiring
- Commanding
- Pointing to something to get obtain it

Mand Introduction Video

The Mand

- Antecedent: Want it (motivation)
- Behavior: Saying what you want
- Consequence: Getting what you want
- Examples:
 - Hungry, Say, “Banana,” Someone gives you a banana
 - Need door opened, Ask for key, Someone gives key
 - Lost, Ask for directions, Someone gives directions

A More Formal Definition

- Mands are verbal behavior
- Motivation is an antecedent to the mand
- The mand specifies its reinforcer

Types of Mands Video

What do we ask for?

- Things (tangible items, food, toys, and so forth)
- Actions (asking for push, tickle, open, throw, etc)
- Missing items
- Attention (asking someone to look at you, watch you, walk toward you, listen to you, etc.)
- Information (What is it? Where is it? Who has it? Who did it? How do you do it? Why? Etc.)
- To stop something or remove something

Mands Benefit the Speaker

The way things get better for the speaker will vary depending on *how* the person asks for what they want, *how much* they want it, and the *timing* of the request.

In some way, things get better for the speaker

Mands Benefit the Speaker

- Asking for food and getting it when you are hungry reduces the state of food deprivation.
- Asking for a pen and getting it when you need to write takes away the problem of not being able to write when one has to sign a paper.
- Saying “where are my keys?” may provide information regarding the location of the keys. The information will ultimately help the person find the misplaced keys.
- Saying “really?” or “Oh, yeah” in a conversation may serve to keep your partner talking.
- Pointing at an object may result in the “listener” looking in that direction. Thus the listener may then be able to respond to the object in some way that benefits the speaker.

Mand Sequences

- Students need to learn to ask for many different types of reinforcers
- Best to start with mands for items that are immediately present
- Then actions and activities

Teaching more complex mands, such as mands for information, requires having taught other verbal behaviors first.

Several Types of Mand Behavior: Some Examples

- Mand for item present vocal response
- Mand for item present sign language response
- Mand for item present with selection based response (i.e. Picture Exchange Communication System; Frost & Bondy, 1994)
- Mand for item not present
- Mand for action
- Mand for attention
- Mand for information
- Mand for continued verbal behavior

Conversation involves mands

- **Conversant 1:** “What did you do last night? (mand for information)
 - **Conversant 2:** “I went with my son to see that new fantasy film.”
 - **Conversant 1:** “Was it good?” (mand for information)
 - **Conversant 2:** “I liked it but my son found certain parts a bit scary.”
 - **Conversant 1:** “Really?” (mand for more verbal behavior)
 - **Conversant 2:** “Yes, some of the dark magic stuff was too much, but he did like the flying wizards.”
 - **Conversant 1:** “I haven’t seen the movie yet.”
 - **Conversant 2:** “Oh, I think you should go, you seem to like that kind of stuff” (mand for action)
- And so on....

When do we request? When..

- we want something
- someone is present and willing to respond to the request
- something we want may be available

Motivation

- Result of changes in the environment
- Alters the value of reinforcer
- Leads to people doing something to get what is valuable
- Unlearned and learned
 - Unlearned: things that have value because they help you survive (e.g., water, warmth, oxygen, food)
 - Learned: things that have value because of a history of reinforcement (e.g., phone charger, car keys, pencil)
- Alter value; Evoke behavior

Motivative Operations and the Mand -*Jack Michael*

Motivative Operations	
Value Altering Effects	Frequency Altering Effects
Establishes value of stimuli: events or items will serve as reinforcers	Evokes any behaviors that in the past have resulted in obtaining the events or items
Abolishes value of stimuli: events or items will not serve as reinforcers	Abates any behavior that in the past have resulted in obtaining the events or items

Motivating Operations	
Value Altering Effects	Frequency Altering Effects
Establishes the value of stimuli: events or items that will serve as reinforcers	Evokes any behaviors that in the past have resulted in obtaining the events or items
Abolishes the value of stimuli: events or items that will not serve as reinforcers	Abates any behavior that in the past have resulted in obtaining the events or items

Examples: Unconditioned Motivating Operations and Deprivation
<ul style="list-style-type: none"> • After being under water in a pool for more than a few seconds, the body becomes deprived of air (oxygen). The effect of oxygen deprivation is to establish air as a reinforcer. Likewise the effect of oxygen deprivation is to evoke behaviors that result in obtaining air, such as swimming to the surface. • After not eating for several hours, food is likely established as a reinforcer. The person who is food deprived will be more likely to engage in behaviors that result in obtaining food, such as walking to the refrigerator, driving to a restaurant, or asking someone else for food. • When one eats salty pretzels (causing water deprivation), drinking water becomes of value and will likely lead to engagement in any behavior that has produced water in the past.

Videos: Unlearned Motivation

1. *Oxygen deprivation*
2. *Salt*
3. *Water Satiation*

Conditioned Motivating Operation-Transitive (CMO-T)

When something is presented that makes something else valuable, it is called a transitive motivative operation (CMO-T).

CMO-Ts are learned through experience.

Conditioned Motivating Operation-Transitive	
The presentation of one stimulus makes another stimulus more valuable	
Reinforcer Establishing Effect Stimulus A makes Stimulus B more valuable	Frequency Altering Effect In the presence of stimulus A, behaviors associated with obtaining Stimulus B become more probable
Example Someone asks you to write your name (Stimulus A) makes a pen (Stimulus B) more valuable	Example Someone asks you to write your name (Stimulus A) evokes the behavior of asking for a pen (behavior associated with obtaining Stimulus B)

*Video of Bubbles with a tight lid:
Conditioned Motivating Operation-
Transitive*

Examples of CMO-Ts include:

- Seeing an unturned screw makes a screwdriver valuable
- Being asked to sign your name makes a pen valuable
- Being given wooden tracks makes a toy train valuable

When the presentation of an event makes the removal of that event valuable, it is called a Conditioned Motivating Operation-Reflexive (CMO-R).
CMO-Rs are often thought of as warning signals.

Conditioned Motivating Operation - Reflexive

The presentation of one stimulus makes the removal of that stimulus valuable

Reinforcer Establishing Effect	Frequency Altering Effect
Stimulus A makes its removal more valuable (a warning signal)	In the presence of stimulus A, behaviors associated with the removal Stimulus A become more probable
Example	Example
The presentation of a direction that is hard for the student leads to the value of getting away from the teacher or task.	When the direction is given, the student may attempt to move away or engage in other problem behaviors that will remove the demand.

Examples of CMO-Rs include:

- Sight of dark clouds on the horizon
- Sound of drill at dentist
- Boss says, “Can we talk for a minute?”
- Sound of car when therapist pulls up to house

*Video of Conditioned Motivating
Operation-Reflexive (“No work, no
monkey”)*

How can we request?

- Talking - vocalizations
- Typing
- Writing
- Gestures
- Sign language
- AAC

Response forms - General issues and Pros and Cons

- The shape of the response
 - Vocal / talking
 - Sign language
 - Writing
- The selection of what is wanted
 - Picture exchange systems
 - Many augmentative devices/Speech generating devices

Topography Based Verbal Behavior	Selection Based Verbal Behavior
<ul style="list-style-type: none"> •Vocal •Signing •Written 	<ul style="list-style-type: none"> •Picture exchange •AAC with pictures •Communication board

<ul style="list-style-type: none"> • Use assessments to help select response form <p><i>Generally:</i></p> <ul style="list-style-type: none"> • If weak echoic, consider sign language. • If weak motor skills or attempts to teach sign fail, try picture exchange or augmentative devices.

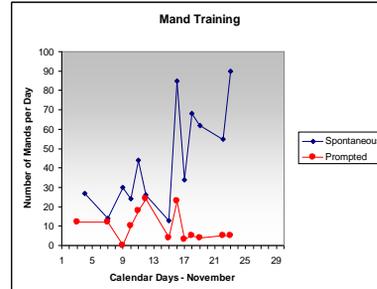
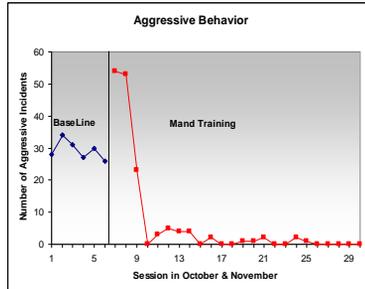
Considerations: Sign Language as Response Form (Carbone, 2005)

- Obtain a sign manual or take a signing course in ASL.
- Make sure that all people who interact regularly with the student are familiar with sign language
- Teach the first signs as mands
- Use teaching procedures that include the fading of physical and gestural prompts to teach signed mands.
- Insure that the student has many opportunities to use signs for mands.
- Data systems should be in place to count the frequency of signed mands and to record how many signed mands the student has acquired.
- Sign language training will need to be used in conjunction with echoic training and other procedures for teaching vocal responses.
- Signs will need to be taught across all the verbal operants.

Defective Mands

- Problem behavior may serve as an effective mand
- Inadvertent success of such behavior
- Giving the child what they want immediately after they scream my stop the screaming
- Screaming was an effective means of getting what was wanted
- If screaming was effective this time, it may be more likely to occur in the future

Mands Can Compete with Problem Behavior



Mand Training

- Teaching students to make requests is a central focus of interventions guided by ABA

Video - Mike with student

Mand Training Steps

- Identify strong motivators
- Select response form child will use to mand
- Pair staff with delivery of reinforcement
- Teach when motivation is strong (MO)
- Pair delivery of reinforcement with mand form (vocal word and sign)
- Prompt child to use mand form
- Fade prompts so the mand is spontaneous
- Teach appropriate sequence of mand forms
- Use data based decision making to adjust mand programming
- Avoid delivering reinforcement if problem behavior is occurring

Identify Reinforcers

- Observe approach behavior and gaze
- Control items and events that may be valuable to the child
- Let the child see that the preferred item or event is available
- Observe if the child approaches
- Contrive and capture motivation

Identify Reinforcers

- Have fun with students
- You won't know what works until you try it
- Remember that motivation changes over time

Capturing MO Examples

- Teaching students to mand for:
 - Food at lunch
 - A coat before going out to play in the winter
 - Water after recess outside

Contriving an MO

- Giving the child a bottle with a tight lid; in the bottle is his favorite toy
- Giving the child a bowl of cereal with no spoon
- Giving the child a toy that requires batteries but withholding the batteries
- Briefly turning on his favorite video
- Giving a bit of her favorite snack to another child
- Use of an interrupted chain procedure: give the child a task to do that involves a series of steps but withhold the materials needed to complete at least one step (have the child do a puzzle but withhold one piece)

Best Reinforcers to Use

- Controlled by the listener (teacher, parent, etc)
- Can be delivered quickly
- Can be delivered in small quantities
- Allow only a short amount of contact or are consumable
- Easy to say the name
- Are usually liked by the child

Avoiding Habituation

(adapted from Francis McSweeney, 2006)

- Vary the number of reinforcers used within any one session.
- Vary the way the reinforcers are delivered including what you say during delivery.
- Vary the schedule of delivery. Do not allow the timing of delivery to be completely predictable.
- Stop delivery of reinforcement before it loses its value.
- Vary the type of reinforcer used, for instance do not always use food or always use activities; mix them up!
- Avoid using too much of a reinforcer at any one delivery, less can sometimes lead to wanting it more.

Approach Behavior

- Students should readily approach teacher to receive reinforcers.

Teaching Approach and Accepting From Others

- Teacher should control reinforcers.
- Initially, deliver reinforcers with little response effort required: student takes the item or activity from adult without problem behavior.
- Begin formal Mand Training when students readily approach adults and when they readily accept reinforcers given.

Mand Target Selection Video

Teaching the first few mands

- Start by teaching more than one mand
- Avoid generalized mands
- Single words, not phrases
 - Polite is not always saying “Please”
- Observe approach behavior
- Prompt the right response
- Be sure to fade prompts

Videos

Teaching a vocal mand

Teaching a signed mand

Criteria for Selecting Prompts

- Select the prompt that is sure to evoke the desired response
- Select the least intrusive prompt necessary to evoke the response
- Vocal: echoic prompts
- Sign: physical or imitative prompts
- Devices/Picture exchange: Physical or point prompts

How to fade prompts: 2 methods

- Within trial Prompts
 - Pros and cons
 - Procedure
- Second trial prompts
 - Pros and cons
 - Procedure

Mand Transfer Trials

Video: Mand transfer trials

Within Trial Transfer Mand

- Check for Motivation
- Prompt mand
- Move Reinforcer closer and wait for student to re-emit mand
- When mand occurs, deliver reinforcer while modeling the response (say what is delivered.)

Second Trial Mand Transfer

- Check for motivation
- Prompt mand and deliver reinforcer while modeling response form
- Represent same mand trial with no prompt
- When the mand occurs, deliver differential reinforcer (more or better) and model response form

Video:
Shaping, Prompting and Fading Prompts

Sometimes you can't fade prompts all at once!

- Partial prompt fading
- Transfer trials involve a partial prompt

Physical prompting of signed mand responses and transfer procedures

- Use the least amount of physical contact that will be effective in having the child produce the motor movements for the sign
- When prompting pay careful attention to the students muscle movements
- Over-prompting a student can result in the student learning that they will get what they want if they allow someone to manipulate their hands
- Avoid physically prompting a student when they are in the process of reaching toward an item
- Fade physical prompts as soon as possible using a transfer trial following delivery of the reinforcer without prompts or a prompt fade transfer trial
- For some students, fading prompts too soon may result in a slower pace of mand acquisition

Common Mand Errors

- Student emitting the wrong response form for a mand
- Scrolling: student says words or uses signs that in the past have resulted in the delivery of reinforcers but are not the correct response for the particular reinforcer they want at the time

Mand Error Correction Video

Error Correction and Reducing Scrolled Responses

1. Make sure errors **do not** contact reinforcement:
2. Signal non-availability of reinforcement
3. Wait a few seconds
4. Re-present item with “0” second-delay prompt
5. When possible provide a transfer trial

Keep two kinds of data on mand training:

1. Mand acquisition
2. Mand frequency

Cold probe mand trials always involve a check for motivation.

The probe involves two steps.

1. First probe for motivation
2. then probe for response.

MO/NO MO
Yes/No

Mand Training Guidelines:

- Have a variety of reinforcers available across categories (toys, edibles, actions) that include:
 1. **Items you are targeting** (prompt/fade throughout session)
 2. **Mastered items** (no prompting, error correction if necessary)
 3. **Future targets:** Items that are valuable but not yet mastered or targeted (no prompting, just deliver and say the name of the item)
 4. **Novel items:** Expose student to novel items and activities that may acquire reinforcing value and serve as future targets
- Make sure you run enough easy trials (mastered mands or free delivery)

Some Important Reminders

- Teach mands for items present until a large set of mand skills is developed (broaden first!)
- Don't expand to multiple word utterances too soon!
 - Problems with carrier phrases
 - Use of pivot mands at right time
- Keep an eye out for unexpected mands
 - Observe carefully!

Another important reminder!

- Once students learn to mand, they also need to learn to:
 - Give up reinforcers
 - Accept “No”
 - Waiting for reinforcers after asking

Remember mand training does not end with teaching the child 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
- peer to peer mands
- yes/no mands
- mands for information

When do you teach mands?

- Mand sessions if needed
- Build large repertoire of mands!
- Through out day
 - Set up opportunities!
 - Catch naturally occurring opportunities

Mands in Natural Circumstances

- Mands during various activities
 - Snack/dressing/play or game activities
 - Mands for missing items during academic tacts
 - Mands for specific programs/videos/apps on computers or other devices
- Teach mands in the situation where they will be needed
 - Monitor through probes

Interrupted Chain

- For teaching mands related to task completion or job performance
 - Teach only when student has acquired sizeable tact and mand repertoire and mands for missing items
 - Teach task completion/job completion
 - Teach tacts of all steps and materials
 - Set up a missing step needed to complete chain
 - Prompt mand as necessary
 - Vary step taught as mand

Mand Treatment Integrity

- Establishing treatment fidelity important for any intervention
- Allows for objective and precise delivery of performance-based feedback

Vocal Manding Checklist

Staff: _____ Student: _____ Observer: _____ Date: _____

Section 1: Setting

- Area is sanitized
- Materials needed are organized and ready
- Variety of reinforcers are available

Section 2: Manding Procedure

- Staff has selected appropriate response form (vocal, sign, etc.)
- Staff establishes MO for item
- Staff presents echoic prompt
- Staff attempts to get independent mand (transfer trial)
- Staff delivers item immediately
- Staff fades prompts as quickly as possible
- Staff attempts to fade to MO
- Staff DOES NOT use questions as prompts, such as "What do you want?"
- Staff provides adequate number of teaching trials (approximately 2-3 per minute)
- Staff consistently utilizes procedures across a variety of motivational categories
- Staff uses appropriate error correction procedures

Section 3: Initial Mand

- Initial mands have dissimilar topographies (do not sound the same)
- Initial mands are specific, not general (ex. "more")
- Initial mands are from several different categories (ex. A food, toy, activity, etc.)
- Initial mands are not for removing an aversive
- Initial mands do not require politeness (ex. "please")
- Initial mands are strong reinforcers
- Initial mands are easy to deliver in small quantities
- Initial mands should be items that can be offered frequently
- Initial mands are developmentally appropriate in relation to mean length utterance (MLU)

Section 4: Data Collection

- Frequency of mands is collected daily
- Frequency of mands is graphed at the end of each day

Rating: 1= Yes/Consistently 2= Sometimes/Inconsistent 3= No/Not Occurring 4= N/A Not Applicable

Timing:

	Rate of Manding: 3 Minutes			
	Staff #1		Staff #2	
	Prompted	Spontaneous	Prompted	Spontaneous
Student #1				
Student #2				
Student #3				

(Adapted from Dr. Vince Carbone)

Sign Language Manding Checklist

Staff: _____ Observer: _____ Date: _____

Section 1: Setting

- ___ Area is sanitized
- ___ Materials needed are organized and ready
- ___ Variety of reinforcers are available

Section 2: Manding Procedures

- ___ Staff has selected appropriate response form (vocal, sign, etc.)
- ___ Staff establishes MO for item
- ___ If item is not a targeted mand, staff does stimulus/stimulus pairing
- ___ If item is new target, staff uses 3-step teaching procedure:
 - ___ Staff signs and says name of item
 - ___ Staff prompts student to sign and says name of item
 - ___ Staff delivers item and says name of item
- ___ Least prompt needed to prevent error is used
- ___ Staff has correct number of open targets
- ___ Staff fades prompts as quickly as possible
- ___ Staff delivers item immediately
- ___ Staff attempts to fade to MO
- ___ Staff DOES NOT use questions as prompts, such as "What do you want?"
- ___ Staff provides adequate number of teaching trials (approximately 2-3 per minute)
- ___ Staff consistently utilizes procedures across a variety of motivational categories
- ___ Staff uses appropriate scrolling/error correction procedure
- ___ Any vocalizations are differentially reinforced

Section 3: Initial Mand

- ___ Initial mands have dissimilar topographies (do not look the same)
- ___ Initial mands are specific, not general (ex. "more")
- ___ Initial mands are from several different categories (ex. A food, toy, activity, etc.)
- ___ Initial mands are not for removing an aversive
- ___ Initial mands do not require politeness (ex. "please")
- ___ Initial mands are strong reinforcers
- ___ Initial mands are easy to deliver in small quantities
- ___ Initial mands should be items that can be offered frequently

Section 4: Scrolling Procedure

- ___ Staff prevents scrolling from occurring (errorless teaching)
- ___ Staff blocks error and prompts students' hands into neutral position
- ___ Staff physically prompts correct sign and delivers item

Section 5: Data Collection

- ___ Frequency of mands is collected throughout the day
- ___ Sign mand shaping first/last probe data sheet is used daily
- ___ Frequency of mands is graphed at the end of each day
- ___ Sign mand shaping first/last probes are graphed at the end of each day

Rating: 1= Yes/Consistently 2= Sometimes/Inconsistent 3= No/Not Occurring 4= N/A Not Applicable

Timing:

	Rate of Manding: 3 Minutes			
	Staff #1		Staff #2	
	Prompted	Spontaneous	Prompted	Spontaneous
Student #1				
Student #2				
Student #3				

(Adapted from Dr. Vince Carbone)

Mand Training		
28. Form selection procedures (vocal, selection-based, sign) <i>Evidence that staff have made decisions regarding communication response form based on observation and/or data: use of ABLLS, VB-MAPP or BLAF is sufficient. Also acceptable is data showing lack of response to other response forms. Score this item yes in the case wherein all students appropriately use vocal response forms. Score no if teacher can not explain selection of response form, based on assessment and data.</i>		
29. Density of opportunity (<i>lots of opportunity, not just during snack: an average of at least one mand within two five minute periods for two students. Criteria must be met for all students with mand programs including advanced mand programs.</i>)		
30. MO manipulation (<i>capturing and contriving MO</i>) <i>Evidence that staff is attending to student's motivation by checking for/capturing motivation when strong (staff ensures student demonstrates motivation such as reaching for or looking at the item) as well as contriving motivation (when MO not present)</i>		
31. Shaping <i>Evidence that staff are actively and systematically shaping new mands for most students in the class; including, when appropriate, evidence of advanced mand training</i>		
32. Mand prompt system <i>Evidence that staff have in place and use procedures to fade prompts used to evoke mands; observing several instances of mand prompt fading during instruction is sufficient; data documenting such processes can also be used to score this item</i>		
33. Staff provides mand discrimination opportunities by varying reinforcers used in mand training. <i>For early learners must include minimum of two active items in session. Mand target selection for students will include multiple types of reinforcers (i.e. food, play items, physical activities, etc).</i>		

A Note on Eye Contact

- We look at someone's face to monitor how they will respond as a listener
- Eye contact best taught through the mand
- Teach the mand first without requiring eye contact
- Then use a time delay between the mand and reinforcing
- The pause will serve as extinction and will lead to variability of response: looking at the listener's eyes!

(Carbone, et al., 2013)

Remember

- Mand training is central to skill acquisition
- Mand training can address core deficits of autism
- Mand training is tied to natural events and training functional skills
- It can reduce problem behavior!
- Mand training should be fun!

Thank you for your attention!

The End of the Presentation

Questions?

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