A Language Intervention Program Based on a Verbal Behavior Curriculum

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Steps to Beginning an Intervention Program

- Conduct a VB-MAPP assessment
- The purpose of the assessment is to determine a child's skills and barriers in order to design an individual program that best fits the child
- Determine the child's VB-MAPP level (1, 2, or 3)
- Determine skill strengths and weaknesses
- Work on balancing out the skills
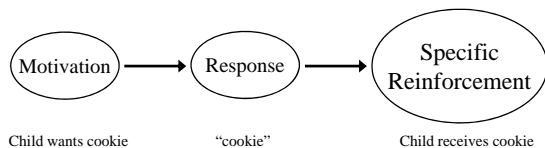

VB-MAPP: Level 1

Developing an Intervention Program for a Child in Level 1

- 1) Identify reinforcers and MO levels
- 2) Identify existing skills (e.g., mands, tacts, imitation)
- 3) Identify barriers and conduct necessary descriptive or functional analyses (e.g., instructional control, obsessive behaviors, self-stim)
- 4) Identify response form (speech, signs, PECS)
- 5) Determine baseline levels
- 6) Develop IEP goals based on VB-MAPP scores

Developing an Intervention Program for a Child in Level 1

- 7) Measurement and data collection (objectivity)
- 8) Use DTT or NET, or both?
- 9) General teaching setting (controlled environment, materials prepared, data sheets, reinforcers ready)
- 10) Daily schedule
- 11) Parent training

Intervention Program Level 1: Mand Training

Motivation → Response → Specific Reinforcement

Child wants cookie   "cookie"   Child receives cookie

Where to Start Mand Training?

- What motivates a specific child?
- When is that motivation strong?
- Can that motivation be used (captured or contrived) to teach a mand?
- Make a list of potential motivators and the related reinforcers
- Select the first few words to teach

Words that Should be Avoided

- Words that are related to a variety of motivators (e.g., *More, Please, Mine, Yes, Help, Pointing*)
- Words that are related to motivators from general categories (e.g., *Eat, Play, Toys*)
- Words for removing an aversive (e.g., *Break, All done, Mine, No, Go play*)
- Words that are related to items that are hard to deliver (e.g., *Swimming, Bike ride*)
- Words that are related to items that are hard to remove (e.g., *Gum, Outside*)
- Words that are related to politeness (e.g., *Please, Thank you*)

Selecting the First Words to Teach as Mands

- Words that are related to strong motivation for an item
- Words that are related to items that involve slow satiation so multiple trials can be conducted
- Words that are related to a specific item (i.e., allows for prompting)
- Words that are related to items that are consumed or dissipate
- Words that are related to items that are easy to deliver immediately
- Words that are related to items that are easy to remove when necessary
- Words that involve a response form that is already in the repertoire (e.g., echoic)
- Words that do not rhyme or sound to similar to other words
- Words that will be used in the natural environment

Examples of First Words to Teach as Mands

- Specific food items (e.g., apple, chip, cookie, cracker, banana)
- Specific drinks (e.g., juice, milk)
- Toys (e.g., ball, car, bubbles, train, playdoh, puzzle, drum)
- Physical actions (e.g., up, push, spin, tickles, hugs, swing)
- Individualized reinforcers (e.g., hat, book, music, video)
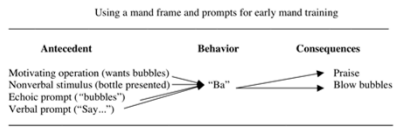- People or pets (e.g., mom, dad, Maggie)

Issues Concerning Motivative Operations (MOs) and Mands

- All mands are controlled by motivating operations (MOs)
- There must be an MO at strength to conduct mand training
- MOs vary in strength across time, and the effects may be temporary
- MOs must be either captured or contrived to conduct mand training
- MOs may have an instant or gradual onset or offset
- High response requirement may weaken an MO
- Instructors must be able to identify the presence and strength of an MO, and use it when it is there
- Instructors must be able to reduce existing negative behavior controlled by MOs
- Instructors must know how to bring verbal behavior under the control of MOs

Intervention Program Level 1: Mand Training for a Child With Some Echoics

- Identify a motivator that is currently strong (e.g., bubbles)
- Have the bubbles present
- Provide some "noncontingent" bubbles first, make it fun
- Pair the word "bubbles" with the delivery of the bubbles
- Begin training by giving an echoic prompt and delaying the delivery of the bubbles
- There are 4 antecedents (MO, object, echoic, verbal prompt)
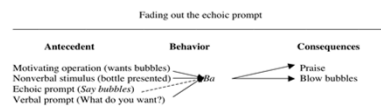
Intervention Program: Level 1

Using a mand frame and prompts for early mand training

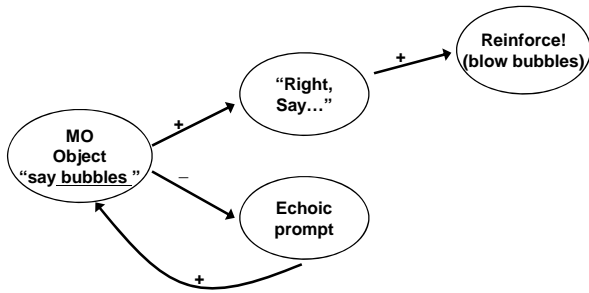| Antecedent	Behavior	Consequences
Motivating operation (wants bubbles)	"Ba"	Praise
Nonverbal stimulus (bottle presented)		Blow bubbles
Echoic prompt ("bubbles")		
Verbal prompt ("Say...")		

Fading the Echoic Prompt

- The goal is to "transfer control" from the echoic prompt to the MO and the object
  - Partial prompt
  - Delayed prompt
  - Combination of delay and partial

Fading out the Echoic Prompt

Fading out the echoic prompt

Antecedent	Behavior	Consequences
Motivating operation (wants bubbles)	Ba	Praise
Nonverbal stimulus (bottle presented)		Blow bubbles
Echoic prompt (*Say bubbles*)		
Verbal prompt (What do you want?)		

Echoic Transfer Procedure

Transfer of Stimulus Control Procedure

- Steps in the transfer procedure
- 1) Present target S^D + verbal prompt ("What do you want?")
- 2) If correct…..reinforce
- 3) If incorrect present echoic prompt
- 4) If echoic is correct repeat #1 (present the **transfer trial**, i.e., "What do you want" while holding up the reinforcer)
- 5) Add distracter trial (e.g., an imitation trial)
- 6) Repeat cycle with more distracters, and use less prompting

Strengthening the Response by Adding Distracter Trials
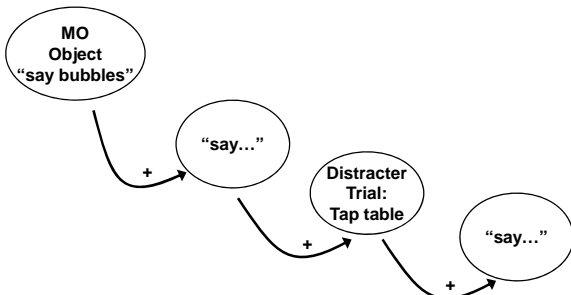
Generalization

- A specific word should occur under a wide variety of circumstances
- Different settings
- Different people
- Different noise level and distractions
- Different carrier phrases
- Different tone of voice, pitch, intonation, prosody, and volume
- Different materials
- Combinations of these

Teaching Format

- Basic behavior modification procedures
- Discrete trial (Stimulus/MO→Response→ Consequence)
- Short sessions (1-25 minutes)
- Training on the floor, at a table, playground, etc.
- Mixed VB format (mand, imitation, echoic, listener, MTS)
- Focus on the mand and tact

Immediate Goals

- Teach the child to mand-tact free from echoic (or imitative for signers) prompts
- Teach the child that he can gain access to reinforcers by manding
- Teach the child that the initiating stimulus may be visual, auditory, or both
- Teach the child to be a speaker and a listener
- Gain instructional control in a positive way
- Establish the instructor as a conditioned reinforcer, make learning fun
- Avoid the temptation to increase the size of the sentence (e.g., "I want..). It is more functional for the child to increase the number of mands rather than the words used in one mand

Expanding the Mand-Tact Repertoire

- Following the acquisition of two unprompted mand-tacts, add 1-2 new mand-tacts
- Use the same criteria suggested above for selecting new words
- Don't worry about fading out the object yet
- Focus on single words only, no carrier phrases
- Data collection: First trial data

Basic Data Sheet

Expanding the Mand-Tact Repertoire

- Increase the focus on imitation, RD, echoic, and MTS
- Program for generalization
- After a few mands are acquired it may be appropriate to start tact training
- No formal RFFC or Intraverbal training yet
- Carefully analyze errors and correct early
- Watch for emerging barriers (e.g., scrolling, prompt bound, rote mands, reinforcer dependency)

Intervention Program
Level 1: Tact Training

Nonverbal S^D → Response → Generalized Reinforcement

Child sees a dog   "dog"   Child receives praise
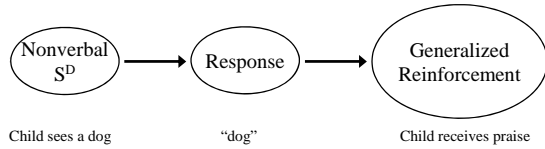
When to Start Tact Training?

- Start tact training as soon as possible, However…….
- If the child does not have any mands the initial focus should be on establishing mands
- If a child cannot emit any echoic or imitative behavior the initial focus should be on using mands and pairing procedures to help to establish echoic or imitative skills
- If the child demonstrates severe behavior problems or noncompliance, it may be that these issues (along with mand training) are more of a priority
- If the child can easily emit several echoic or imitative responses, and has a few mands, then tact training should begin immediately
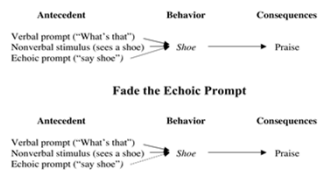
Selecting the First Words to Teach as Tacts

- Nouns (3-D) that are relevant to the child (e.g., shoe, chair, car, cat, ball, spoon, book)
- Items that may also be reinforcing (combining mand and tact training)
- Use items that can be clearly identified (e.g., some toys have multiple names)
- Select items that are easy to present, readily available, and easy to manage in teaching sessions
- Use words or signs that are already in the child's echoic or imitation repertoire
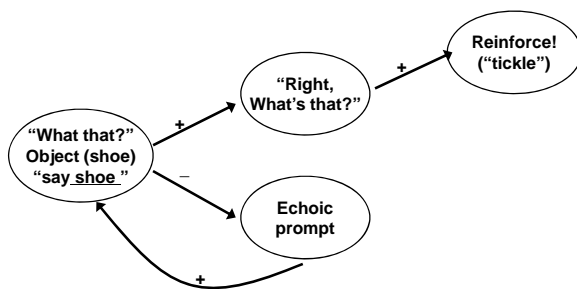
Selecting the First Words to Teach as Tacts

- Use words and signs that are easy to pronounce or formulate
- Select items that are clearly distinct from each other
- Select targets that are different from each other (they don't rhyme, or start with the same letter)
- Use items that the child can already select as a listener
- Make use of the "next 10 words list" to pre-select new tacts
- Select items that can be easily generalized
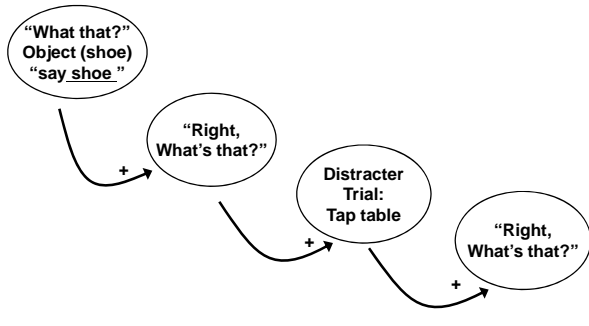- Use the "First 300 nouns language list" (Roden & Sundberg, 2010)

Tact Training: Transfer From Echoic to Tact

Antecedent	Behavior	Consequences
Verbal prompt ("What's that") Nonverbal stimulus (sees a shoe) Echoic prompt ("say shoe")	Shoe	Praise

Fade the Echoic Prompt

Antecedent	Behavior	Consequences
Verbal prompt ("What's that") Nonverbal stimulus (sees a shoe) Echoic prompt ("say shoe")	Shoe	Praise

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Echoic Transfer Procedure

"What that?" Object (shoe) "say shoe" → (+) → "Right, What's that?" → (+) → Reinforce! ("tickle")

"What that?" Object (shoe) "say shoe" → (–) → Echoic prompt → (+) → "What that?" Object (shoe) "say shoe"

Strengthening the Response by Adding Distracter Trials

"What that?"
Object (shoe)
"say shoe "

+ → **"Right, What's that?"**

+ → **Distracter Trial: Tap table**

+ → **"Right, What's that?"**

Adding New Tacts

- Use three days of first trial correct data (cold probe)
- Add the acquired target to the generalization list
- Conduct listener trials (should already be happening)
- Add a new tact when an existing target has met criteria
- Use the "Next 10 word list" to select new target tacts
- Conduct daily maintenance and generalization trials on "mastered" tacts
- Add the mastered target to the "300 Nouns" list
- This list will later be used for selecting targets for noun-verb combinations, etc., LRFFCs, and intraverbals
- Avoid the temptation to add adjectives, prepositions, adverbs, etc.

Echoic and Imitation

- Incorporate echoic and imitation into mand, tact, listener and matching sessions, as well as play, social, self-help, and everyday natural environment activities, etc. Unless…
- The skills are very weak and need specific speech therapy or training time
- Standard teaching procedures of establishing stimulus control through prompting, fading and differential reinforcement
- There are several additional ways to increase vocalizations:
  - use a mand frame
  - pairing procedures
  - use augmentative communication
  - use in context echoic trials (out of context also)
  - differential reinforcement of vocalizations and shaping

Teaching Listener Skills

- Begin with specific actions (e.g., clap, jump, sit, come here, run)
- Use the well-established behavioral procedures of prompting, fading, and differential reinforcement (Lovaas, 1977)
- Begin listener discrimination training (LD) as soon as possible
- Follow the sequence of listener skills presented in the VB-MAPP Listener Task Analysis
- Teach tacts and LDs at the same time (for Level 1 and most of Level 2 skills)
- Array management is critical: Get away from a neat array of 3 ASAP!
- Use large and messy arrays, scenes, and the natural environment

Visual Perceptual Skills and Matching-to-Sample (MTS)

- An important part of an early intervention program
- Teaching procedures involve the standard establishment of stimulus control through prompting, fading, and differential reinforcement
- Recommend following the sequence of matching skills presented in the VB-MAPP
- MTS can be used to help establish a variety of more advanced skills such as…
- Advanced scanning skills and attending
- Natural environment training
- Listener discriminations
- LRFFC categorization
- Intraverbal categorization

Sample Classroom Schedule

TIME	BEN	ANNA	MARIA	MICHAEL	SHANNON (MWF)
9:00-9:10	AM routine/VB	AM routine/VB	AM routine/VB	AM routine/VB	AM routine/VB
	ICHIRO & JORDAN	KYLE	PETER & AIDAN	TYREE	ICHIRO
9:15-9:40	TACT	TACT	TACT	TACT	TACT
	TYREE & PETER	AIDAN & JORDAN	ICHIRO	KYLE	TYREE
9:40-10:05	MTS	MTS	MTS	MTS	MTS
	JORDAN	AIDAN & KYLE	ICHIRO & TYREE	PETER	AIDAN
10:05-10:15	SNACK	SNACK	SNACK	SNACK	SNACK
10:15-10:30	RECESS	RECESS		RECESS	RECESS
10:30-10:35	DIAPERS	DIAPERS	DIAPERS	DIAPERS	DIAPERS
10:35-11:00	RD	RD	RD	RD	RD
	TYREE & PETER	AIDAN & JORDAN	KYLE	ICHIRO	PETER
11:00-11:25	IND. SESSION	IND. SESSION	IND. SESSION	IND. SESSION	IND. SESSION
	JORDAN & ICHIRO-MTS	PETER-MTS	KYLE & AIDAN-RFFC/IV	TYREE-IV	KYLE
11:25-11:45	TACT	TACT	TACT	TACT	TACT
	PETER	KYLE & TYREE	JORDAN & ICHIRO	AIDAN	TYREE
11:45-12:15	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
12:15-12:45	RECESS	RECESS	RECESS	RECESS	RECESS
12:45-12:50	DIAPERS	DIAPERS	DIAPERS	DIAPERS	DIAPERS
12:50-1:10	FM	FM	FM	FM	FM
	AIDAN & ICHIRO	KYLE	PETER & TYREE	JORDAN	
1:10-1:30	RD	RD	RD	RD	RD
	KYLE	PETER & TYREE	JORDAN	AIDAN & ICHIRO	
1:30-1:50	GROUP	GROUP	GROUP	GROUP	GROUP
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY-PARENTS
1:50-2:00	PACK UP-JOBS	PACK UP-JOBS	PACK UP-JOBS	PACK UP-JOBS	PACK UP-JOBS
	ICHIRO & JORDAN	KYLE	PETER & AIDAN	TYREE	

Basic Elements of Teaching Tacts and Conducting a Tact Session

- Have a variety of reinforcers available and ready to deliver
- Make sure the reinforcers are valuable at the current moment
- Know the level of the child's existing tact repertoire
- Know how to conduct each of the basic six procedures (i.e., mand, tact, listener discriminations (LD), echoic, imitation, and matching – to-sample)
- Have a collection of items from a list of known tacts available for interspersal (mixed VB), successful tacting momentum, generalization, maintenance, and tacting practice (frequently rotate this material and be able to conduct all these procedures)

Basic Elements of Teaching Tacts and Conducting a Tact Session

- Identify the current targets (use the "Next 10 words list" and selection system)
- Have the target materials ready at the teaching session
- Prepare the material prior to the session and keep it in the child's "materials bin"
- Have a first trial data sheet prepared and ready to use. Take data on the targets only
- Know the best quality response that is targeted
- Know the various prompt levels

Basic Elements of Teaching Tacts and Conducting a Tact Session

- Use a changing reinforcement criterion within a session (require higher quality responding on each trial if possible)
- Use the opportunity to mand as a reinforcer, if possible
- Keep the student engaged as an active responder
- Teach the new Listener LD skill along with the tact
- Be able to read the data, and share the data with other staff at regular staff meetings
- Be able to work the tacts into the child's daily routine (outside of the formal teaching—use "NET" –Natural Environment Teaching)
- Conduct tact training as interspersal activities in all other sessions, including groups, recess, snack, etc. (the NET)

Staff and Parent Skills

- There are a specific set of teaching skills that are essential for advancing an early learner through the VB-MAPP Level 1 targets
- These skills may take many months to learn and regular training and supervision by professionals skilled in behavioral psychology and Skinner's analysis of verbal behavior
- These skills include:
- Basic behavioral teaching procedures (prompting, fading, shaping reinforcement, data collection, etc.)
- The basic elementary verbal operants (e.g., mand, tact, intraverbal)
- Child management skills
- Common sense

Staff and Parent Skills

- **Some Basic Elements of Teaching in an ABA/VB Program**
- Staff (and parents) need to be able to explain:
- What is discrete trial training? (DTT, ABA, VB, NET)
- How do you find and use reinforcers?
- Why pair yourself with reinforcers?
- What is meant by "stimulus control" (S^D control)?
- What are prompts?
- What is fading?
- What is differential reinforcement
- What is a prompt hierarchy?
- What is generalization?

Staff and Parent Skills

- Staff (and parents) need to be able to use the following prompting procedures:
- Physical
- Imitative/echoic
- Tact prompts
- Intraverbal (English word to prompt a sign)
- Gestural/positional/eye
- Direct verbal
- Indirect verbal
- All need to know how to **fade** these prompts and "transfer stimulus control" to the target S^D/MO

Staff and Parent Skills

- Staff and parents need to be able to define and exemplify
- Mand (and why it is important to the child)
- Tact
- Imitation
- Echoic
- Matching-to-sample (MTS)
- Listener skills
- Listener responding by function, feature, and class (LRFFC)
- Intraverbal

Staff and Parent Skills

- Staff and parents need to be able to teach and take data on…
- Manding skills
- Tacting skills
- Imitation skills
- Echoic skills
- Matching-to-sample (MTS)
- Listener skills
- Listener responding by function, feature, and class (LRFFC)
- Intraverbal skills
- Also, all need to learn how to incorporate these skills into non-structured, functional, and daily social activities

Basic Components of an ABA/Verbal Behavior Program

- Teaching procedures are based on standard ABA methodology (e.g., systematic use of reinforcement, prompting, fading, shaping, extinction, generalization, chaining, data collection, etc.)
- Has a mix of Direct Teaching (DTT) and Natural Environment Training (NET)
- Direct (Structured) Teaching is instructor led, with specific targets, a progressive curriculum, and systematic use of the basic teaching procedures, data collection, etc. (structured teaching can and should be conducted in a natural setting, but is usually more difficult)
- NET involves teaching language skills during a child's everyday, functional, and social activities (e.g., play, arts & crafts, snack, recess, self-care, downtime, daily routines, outings, transportation)

Basic Components of an ABA/Verbal Behavior Program

- Mands (requests) are an important part of early language development
- Pairing (staff member becomes conditioned reinforcer) is an important part of every day, and always part of working with children
- Begin table-top work with skills that the child can already do, then begin to increase the demand as instructional control is obtained
- Sessions should be a mixture of verbal skills (i.e., mand, tact, echoic) with the opportunity to mand as the main reinforcement for the target response
- Playing equals learning, use play to actively build skills
- The child should be making frequent requests for desired actions, items, and activities with the mands becoming more generalized and appropriate

Basic Components of an ABA/Verbal Behavior Program

- Words are taught through all functional categories of language (verbal operants)
- Staff member captures and contrives situations to create motivational conditions
- Errorless prompting procedures are generally used (as opposed to punishment (NO) and trial and error)
- Encourages frequent responding when appropriate (fluency)
- Fast paced instruction keeps the child on task (but not all the time)
- Skills are generalized immediately
- Retention probes are conducted to make sure the skills that are acquired are maintained

Basic Components of an ABA/Verbal Behavior Program

- Tasks are mixed and varied so child is thinking on "his toes"
- Difficult tasks are interspersed with easy tasks to keep level of reinforcement high (i.e., control for "ratio strain")
- Transfer procedures are used to make learning easier
- Natural language is used, staff member should not use robotic language (e.g., "What is it?" "Put with same")
- Negative reinforcement (e.g., "All done," "Break") should not be used
- Goals/Skills are established from a functional language curriculum (e.g., VB-MAPP)
- Program should be consistently supervised by trained professionals

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