THE VERBAL OPERANTS

Verbal Operants

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VERBAL BEHAVIOR AND B.F. SKINNER

The focus of this presentation is to gain understanding of the verbal operants as defined by B.F. Skinner in his book Verbal Behavior that was published in 1957.

These verbal operants are key to teaching verbal behavior (VB) within a program of Applied Behavior Analysis (ABA).

ABOUT SKINNER AND VERBAL BEHAVIOR

• B.F. Skinner’s book, Verbal Behavior, was his analysis of verbal behavior where he looked at the functions of language over its forms and described numerous verbal operants, or units of language.

• ABA/VB addresses difficulties in the development of communication seen in most individuals with autism and other related disabilities, in part by emphasizing functional language and tying it to motivational variables.

• Incorporating Skinner’s analysis of VB as part of an ABA program has recently been popularized by certain professionals, notably Drs. Sundberg, Partington, Carbone, McGreevy, Michael, et al.

• There is an extensive body of research justifying the teaching of the verbal operants systematically based on many factors and utilization of specific teaching procedures that are highly effective in teaching persons with autism and related developmental disabilities.

Verbal behavior is the ability to communicate regardless of the topography used.

Vocalizations, sign language, gestures, and augmentative communication are all forms of verbal behavior.

Verbal behavior does not refer to just vocal behavior. Picture exchange, sign language and gestures are all examples of verbal behavior.

All of the actions of a person that are mediated (reinforced) by a response of a listener who is specially trained to respond to that person’s behavior is verbal behavior.

Verbal behavior increases on occasions where it is reinforcing to communicate.

An inability to communicate may result in inappropriate behaviors such as screaming, biting, kicking or self abuse.

Contriving situations that are reinforcing is imperative to assisting in early forms of verbal behavior and alleviating unwanted behaviors.

You are different after you learn how to talk (using verbal behavior). HOW? You talk on occasions in which it would be reinforcing to do so.
BEHAVIOR AND COMMUNICATION

• Many children with disabilities find it increasingly difficult to communicate their basic needs to others. This inability to get what they want may be frustrating for the child and undesirable behaviors can occur as a result.
• Communication, like all other learned behaviors, can be shaped through reinforcement. If we teach children how to talk through contrived situations in their natural environment and reinforce them with what they are asking, they will learn how to communicate more effectively.

BASIC RESPONSE UNIT

• Any response (movements and sounds) that have an effect upon a listener as to produce some form of reinforcement for the speaker.
• You must have both repertoires (speaker and listener) in order to be an effective communicator.

RESPONSE PRODUCT

• Sounds are the response product of vocal verbal behavior
• Sign language is the response product of verbal behavior as well
• Verbal behavior is the movement of the muscles related to the vocal musculature, the product of which are the words (verbally or in sign)
OPERANT CONDITIONING

- Operant conditioning (consequences) - the ability to move the vocal musculature in order to produce enough topography (response products or sounds) to effectively change the behavior of listeners
- People with neurological disorders have difficulty bringing these muscles under operant control

VERBAL OPERANTS
(units of language)

- **Mand** - wanting or de*MAND*ing something
- **Duplic** (echoics and mimetics) - motor imitations and echoics
- **Tact** - coming into con*TACT* with something by labeling nouns, verbs, adjectives, pronouns, etc.
- **Intraverbal** - the ability to talk about objects without them being present; answering fill in the blank statements and Wh- questions

TEACH ALL THE “MEANINGS”

APPLE

- Mand
- Tact
- Echoic/mimetic (duplic)
- Intraverbal
- Receptive
- RFFC
- Textual
WHY TEACH ALL THE MEANINGS?

~ BECAUSE ~

- "I want the apple" is the word apple as a mand because they want to have the apple.
- Seeing an apple and saying "apple" but not wanting it is the word apple as a tact because it is simply a label.
- Repeating the word "apple" after someone has modeled it for you is an echoic response.
- Signing the sign for "apple" after someone has modeled it for you is a mimetic response.
- If someone asks "What is your favorite fruit?" and you respond "apple" is an example of the word apple used as an intraverbal.
- Pointing to an apple or a picture of an apple when told to find the apple is understanding the word "apple" receptively. In this case, the child must identify the apple from an array of objects.
- EFICs are the receptive features, functions and classes of items. For example, an apple is red and round, it's a food or more specifically a fruit, and it is something you eat.
- The textual form of apple is being able to read and/or write the word apple.

RECEPTIVE LANGUAGE

Following instructions or complying with the request (mands of others). A tendency to "get an apple" when someone asks you to do so.

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RECEPTIVE IDENTIFICATION

The student discriminates and identifies stimuli by responding without talking or signing (nonvocally).

Example:

T: "Point to cookie."
S: points to cookie
T: "Great! Here's a chip."

Should be taught with tacts, since these repertoires are facilitating.
MORE ON RECEPTIVE LANGUAGE

- In receptive training, the student is presented with the name of the object or thing to be identified.
- This is an important repertoire but it may not adequately prepare the student for the wide range of verbal stimuli s/he will encounter in the natural environment.

EVEN MORE ON RECEPTIVE LANGUAGE!

- Receptive language is the being able to comprehend and follow directions when instructed by another person. The goal of receptive language is getting the child to appropriately respond to language of others.

- For example, if I need a pen, I may say to someone, “give me a pen.” The person must comprehend my request and comply by giving me a pen.

RECEPTIVE LANGUAGE IN “IEP” TERMS

- Understand
- Comprehend
- Identify (nonverbally)
- Follow directions
- Point to the, Touch the, Give me the
EXAMPLE OF A TEACHING PROCEDURE FOR RECEPTIVE LANGUAGE

- Teaching ABLLS™-R objective C50 (following a multiple component sequence instruction) using joint control procedure

C45.wmv

RECEPTIVE BY FEATURE, FUNCTION AND CLASS (RFFC)

Responding to items in the environment when provided a description of them and not their "names". A tendency to point to "apple" when someone says "show me something you eat", "something that is a food", or "something that grows on trees", etc.

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Example of an RFFC

Receptively identifying a stimulus when given a description of a feature (characteristic), function, or class (category) of the item, not by its name.

Examples:
- (Receptive by Feature)
  T: "Show me something round."  
  S: points to cookie
- (Receptive by Function)
  T: "Point to something you eat."  
  S: points to cookie
- (Receptive by Class)
  T: "Where's a food?"  
  S: points to cookie
### MOTOR IMITATION (Mimetic)
Copying someone's motor movements. A tendency to sign "apple" when someone else signs apple.

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### ECHOIC (Vocal Imitation)
Repeating precisely what is heard, usually immediately. A tendency to say "coffee" because someone else just said it.

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### ECHOIC REPERTOIRE
- The echoic is the verbal operant that relates to vocal imitation.
- If the echoic repertoire does not develop early in the teaching, augmentative communication is needed.
  - Providing a system for manding helps in reducing behavior problems and in the development of vocalizations.
- An echoic is verbal behavior whose form is controlled by someone else's verbal behavior with point-to-point (1:1) correspondence. What this means is that the child echoes exactly the speech of the instructor.
  - **Echoics are key in teaching the other verbal operants.**
MORE ON THE ECHOIC

- For example, the teacher says, "Cookie" and the child says, "Cookie." In order for speech to be reinforced, it must occur.
  - The echoic provides us with a mechanism for evoking speech such that we may reinforce it.
- If, for example, we wish to teach the child to say, "Mommy," but there is no echoic repertoire, we would have to wait until the child said, "Mommy" on his own and then reinforce it strongly.
  - If instead we teach the child to develop a strong echoic repertoire, we can repeatedly say, "Mommy," the child can echo, "Mommy," and we can reinforce it many times, thus increasing the probability of the behavior (the word "Mommy") in the future.
- Thus, you can see how a strong echoic repertoire is critical in teaching new language, since the child's ability to imitate vocally allows the instructor to create many opportunities for the child to use and be reinforced for speech.

IMITATION IN GENERAL

- In order to learn any skill, a child must have an imitation repertoire. Without imitation, it is nearly impossible to teach anything. This is especially true for teaching language.
- Motor imitations include oral, gross and fine motor movements. Being able to imitate the behaviors of others may lead to appropriate vocalizations, play, and social interactions.
  - To learn to sign, a child needs to develop a good motor imitation (mimetic) repertoire.
  - To learn to speak, the child needs a strong vocal imitation (echoic) repertoire.

Benefits of Echoics/Mimetics

A strong echoic/mimetic repertoire makes it possible to teach other forms of verbal behavior; by presenting an echoic/mimetic prompt and getting a response, the teacher can reinforce according to what operant is being taught (deliver the item for a mand, deliver a generalized reinforcer for a tact, etc.)

It is difficult, if not impossible, to teach without a strong imitation repertoire.

Strengthening one member of a class of behavior strengthens all members of that class.
**ECHOICS & MIMETICS (IMITATION) IN “IEP” TERMS**

- Verbally imitate (sounds, words, phrases, sentences, number sequences)
- Verbally imitate prosody of verbal model
- Imitate the gross/fine motor action of instructor/peer
- Imitate the gross/fine motor movements
- Imitate the speed of action
- Demonstrate appropriate motor imitation with objects
- Imitate signs used (to mand, tact or use as intraverbals)

**MAND (request)**

A tendency to say "coffee" when you want it, e.g. when there is an MO (Motivational Operation) or motivation for it.

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<tbody>
<tr>
<td>Desire or Motivation (MO)</td>
<td>Verbal Behavior</td>
<td>Specific to the MO</td>
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**THE POWER OF MANDING**

- The Mand is the only form of verbal behavior that benefits the speaker directly
- Marding should be taught extensively and intensively in early learners
- The manding repertoire produces amazing changes in the development of vocalizations and language
WHAT IS EQUATED WITH A MAND?

You can equate a mand with a request.

- We mand for a great many things every day without really thinking of them as mands:
  - Desired items ("I want pizza for dinner")
  - Information ("What time is it?")
  - Assistance ("Can you help me?")
  - Missing items (given a bowl filled with cereal and milk, the child says "I need a spoon")
  - Actions ("Play with me")
  - Attention ("Mommy, look what I did")
  - Negative reinforcement (removing something undesired/aversive) ("Turn off that loud music!")

MORE ON MANDING

- The mand is verbal behavior whose form is controlled by states of deprivation and aversion.
  - It is often said to "specify its own reinforcer." What this means, loosely, is that the function of a mand is to request or to obtain what is wanted.
    - So if a child says "Cookie," and it is functioning as a mand, that means the child is requesting the cookie. Think of mand as short for "demand" or "command." The way to reinforce a mand is to deliver the item wanted. If a child says "Cookie," you'd give him a cookie. This positive consequence (reinforcement) of the mand will make it more likely that the behavior will occur in the future, i.e., that the next time the child wants a cookie, he will say cookie.
  - Manding typically increases language in general because, through the positive reinforcement delivered as a consequence for the mand, the child comes to associate the sound of his/her own voice with positive consequences.

EVEN MORE ON MANDING!

Manding is typically the first step in teaching language because it is based in the child’s motivation.

Manding is the verbal operant that is controlled by and provides immediate benefit to the speaker; therefore, making it the first verbal operant taught in an ABA program that utilizes Skinner’s conceptual analysis to verbal behavior.
**BENEFITS OF MANDING**

Mands are a way of pairing the student's voice (or sign) with positive reinforcement; this will make language itself a reinforcer.

Manding is the most effective way for the teacher to pair up with positive reinforcement, since s/he is the one reinforcing the mand.

Replacing inappropriate mands with appropriate ones can reduce undesired behaviors.

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**MANDING IN “IEP” TERMS**

- Request
- Gain attention
- Answer yes or no to offered items
- Use “wh-” question forms
- Ask for
  - items
  - actions
  - assistance
  - removal of something undesired/aversive

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**EXAMPLE OF MANDING**

- Manding for a missing item (ABLLS™-R F9)

  F8 (Fork).wmv
TACT (label)

Naming or identifying objects, actions, events, relations, properties, etc. A tendency to say “coffee” when you see coffee.

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<tr>
<td>Non-Verbal Stimulus</td>
<td>Verbal Behavior</td>
<td>Social</td>
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TACTING DEFINED

- Anytime a non-verbal stimulus contacts your senses, it is called tacting.
- The tact is verbal behavior that is under the control of the nonverbal environment and includes nouns, actions, adjectives, pronouns, relations, and others.
- This one you can think of as a label of something in the environment or vocabulary.
- The word tact, another of Skinner's intentionally “nonsense” words, comes from the notion of the child's making contact with the nonverbal environment.

MORE ON TACTING

- Once the child has an echoic repertoire and has acquired a number of consistent mands, you can begin to teach the tact.
- The way to reinforce a tact is NOT by delivery of the item named, because a tact does NOT specify its own reinforcer, as a mand does.
- You reinforce mands with generalized reinforcers, essentially anything other than the item named. Naturally, praise or confirmation are typical means of reinforcement (i.e., to the child labeling “Airplane!” the mother says “You’re right, it IS an airplane” and maybe ruffles the kid’s hair). You can also reinforce with a primary/tangible reinforcer: “You’re right, it’s an airplane. Here’s a cookie.”
- Tacting is, in a way, most of vocabulary and makes up a huge portion of everyday language. When teaching mands, you want to teach in a condition of satiation, when the MO for the stimulus is low.
  - This is the exact opposite of mand teaching.
EVEN MORE ON THE TACT!

- To teach a tact, you would choose a stimulus for which there is no or a weak MO and give the echoic “Cookie” (after he’s had his fill). When the child echoes, “Cookie,” you could say, “Right, it’s a cookie!” and reinforce with chips, or something else for which there’s an MO.

- In tact training, there is no MO for the target stimulus, but there still must be a strong MO for the reinforcer that will be delivered. Thus, the MO is still critical in tact training, although it relates to the reinforcer that is now different from the target stimulus.

EXAMPLE:
- If a child sees a cookie and says “Cookie,” but maybe has just had dinner or a bunch of cookies and is satiated (there is no or a weak MO), he saying “Cookie” is not functioning as a mand, but as a tact. He could just as easily say “Hey, there’s a cookie!” We also do this all the time, in so many ways it’s hard to count, but think of it essentially as labeling.

- Tacting is functionally very different from manding.

- Tacting is usually the focus of many DTT programs, although echoics and mands are arguably far more important, especially when first teaching language.

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Benefits of Tacts

Tacts are equivalent to vocabulary; a strong tacking repertoire is a useful tool.

Tacts include all nouns (colors, shapes, numbers, letters, people, places, etc.), as well as emotions, actions, adjectives, and other stimuli.

Tacts can be transferred to intraverbals using a tact-to-intra verbal transfer procedure; thus, teaching tacts can prepare for teaching conversational language.

Example of Tacting

- ABLSS™-R objectives
  - G 2: tacking common objects
  - G 12: tacking parts/features of object
Tacting by Feature, Function and Class (TFFCs)

Expressively identifying a stimulus when given a description of a feature (characteristic), function, or class (category) of the item, not by its name and the stimulus is present.

Examples:
(Tacting by Feature)
  T: “Tell me something round” (stimulus present)
  S: “Cookie”
(Tacting by Function)
  T: “What’s something you eat?” (stimulus present)
  S: “Cookie”
(Tacting by Class)
  T: “Where’s a food?” (stimulus present)
  S: “Cookie”

MORE ON RFFCs AND TFFCs

RFFCs/TFFCs are a bridge between tacting and intraverbals; using the tact-to-intraverbal transfer procedure affords the means to transitioning from VB with a visual stimulus to VB without a visual stimulus (or conversation).

FFCs allow students to talk about not only the stimulus itself, but to describe parts to the whole, characteristics, uses, and categories of those stimuli.

TACTING IN “IEP” TERMS

- Label (verbally or in sign)
- Say name/label of item presented
- Sign the name/label of item presented
- Verbally identify
INTRAVERBAL

Answering "wh" questions or having a conversation so that what you say is determined by what the other person says. A tendency to say "coffee" when someone else says "What's your favorite morning beverage?".

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<td>Verbal Behavior Does not match other learner</td>
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MORE ON THE INTRAVERBAL

- The intraverbal is verbal behavior that is under the control of other verbal behavior and is strengthened by social reinforcement.
- Intraverbals are typically thought of in terms of conversational language because they are responses to the language of another person, usually answers to "wh-

MORE ON THE INTRAVERBAL!

- With an intraverbal, what the child says in response to the adult's/peer's language does not match what the adult or peer originally said. Intraverbals can be reinforced in a number of ways, with praise, generalized reinforcers, or, naturally, with a continuation of the conversational exchange, i.e., "Wow, cookies! They smell great!" (to which the intraverbal response could be "Thanks" or "You can have some when they're done.").
- To teach an intraverbal, you would ask a question and prompt the response with an echoic with the item or picture of the desired response and reinforce based on the MO when the child emitted the correct response.
- Intraverbals allow children to discuss stimuli that are not present, which describes most conversation.
Benefits of Intraverbals

Intraverbals allow conversation about stimuli when they are absent.

Intraverbal behavior is an important part of conversation (along with mands for information and attention).

Without an intraverbal repertoire, true conversation is essentially impossible.

Examples of Intraverbals

- ABLLS™-R objective H4: Animal Sounds

Intraverbals in "IEP" Terms

- Answer "wh-" questions
- Sing songs
- Fill in the blanks
- Describe an object/item or sequence of events
- Have/maintain a conversation
- Answer novel questions
- Tell stories
Intraverbal by Feature, Function and Class (IFFC’s)

Expressively identifying a stimulus when given a description of a feature (characteristic), function, or class (category) of the item, not by its name and the stimulus is NOT present.

Examples:

(Intraverbal by Feature)
T: “Tell me something round” (stimulus not present)
S: “Cookie”

(Intraverbal by Function)
T: “What’s something you eat?” (stimulus not present)
S: “Cookie”

(Intraverbal by Class)
T: “Tell me a food.” (stimulus not present)
S: “Cookie”

Teaching Language to Children with Autism and Other Developmental Disabilities

- Scientific principles
- Conceptual analysis
- Skinner’s analysis of verbal behavior

The Assessment of Basic Language and Learning Skills™-Revised (ABLLS™-R)

An invaluable resource, the ABLLS™-R manual contains actual assessment protocols that identify a young learner’s skills and deficits.

- The new revised version of the ABLLS™ includes many new task items that were not included in the previous edition. There are numerous changes in the descriptions and criteria for individual task items, as well as in the sequencing of many task items. Individuals who have used the earlier version are advised to review this information regarding the changes.

- The ABLLS™-R Protocol and the ABLLS™-R Guide are two books in a series of publications from Behavior Analysts, Inc., that can help parents and educators identify specific skills that should be the focus of intervention for a child with language delays.

- The initial scoring allows you to systematically determine intervention priorities and establish an individualized curriculum for each child.

- The second part of this two-part package contains the ABLLS™-R Scoring Instructions and IEP Development Guide.

- Once the assessment is complete, it can be used to outline an IEP and develop a baseline for working with children at their skill level.

by James W. Partington, PhD www.behavioranalysts.com
All information within this presentation came from the following sources:

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  www.carboneclinic.com
- Dr. Vincent Carbone's CABA Course, 2003
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- Dr. Mark Sundberg's Workshops www.marksundberg.com
- Christina Burk's Workshop www.christinaburkaba.com
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- Establishing Operations, Inc. Workshops  
  www.establishingoperationsinc.com
- Dr. Jim Partington's Workshops www.behavioranalysts.com
- Dr. Patrick McGreevy's Workshops www.behaviorchange.com
- Foundation for Autism Training and Education www.thefate.org