

# Teaching Intraverbal Behavior to Children With Autism

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## What is Intraverbal Behavior?

- Words and sentences that are in response to other words and sentences
- Early intraverbal behavior is simple, can be frequent, easy to evoke, and naturally involves social interactions, (e.g., “Peek-a...” “Ready set...”)
- Later intraverbal exchanges become more complex (e.g., describing an outing at the zoo)
- Verbal stimuli that evoke non-matching verbal responses
- Intraverbal skills tend to be relatively difficult for children with autism to acquire

## Intraverbal Behavior

- Many significant aspects of human behavior involve intraverbal behavior
  - education
  - thinking, knowledge, intellectual behavior
  - social behavior, relationships
  - literature, poetry, stories, novels, the arts
  - science, history, mathematics
  - employment
  - religion, beliefs, views, opinions
  - politics
  - international relations
  - discussions about the past and future

## Traditional Views of Intraverbal Behavior

- The intraverbal relation is missed in most theories of language
- Skinner (1957) attributes this to traditional semantic theories of meaning that focus on cognitive processing and the physical referents of words
- “Intraverbal behavior (is) sometimes dismissed as “spurious language.” (It is) not important to the theorist of meaning because the correspondences between responses and controlling variables do not raise important problems of reference” (pp. 79-80)
- The emphasis on meaning and the physical referents of spoken words, or in Skinner’s terms, **nonverbal stimulus control**, is why much of the focus of linguistics is on tacts and listener discriminations

## Behavior

- “Intraverbal behavior...in traditional semantic theory...is more likely to be accepted as a response to a nonverbal state of affairs following the pattern of the tact. What are essentially relations between words and words come to be treated as relations between words and things” (Skinner, 1957, p. 128)
- “In the behavior of a speaker in the twentieth century, *Caesar crossed the Rubicon* is a response, not to a specifiable physical event, but to a set of **verbal stimuli**” (Skinner, 1957, p. 129)

## Traditional Views of the Intraverbal and Mand

- Skinner (1957) identifies a similar problem regarding the mand where the traditional focus on the physical referent has distracted attention away from motivational sources of control
- “Traditionally, (the mand) has been explained by arguing that the speaker acquires a word, in its meaningful relation to **a thing** and then *uses* the word to ask for something. This is not only an inaccurate account of the acquisition of many mands, but there are many examples which cannot be so explained” (p. 128)
- The intraverbal and mand relations are missed as separate operant relations
- Relatively little focus on the mand and intraverbal in language assessment (Esch, LaLonde, & Esch, 2010)

## Meaning

- A speaker is said to use words to express meaning
- A listener is said to understand what words mean
- Skinner's (1957) concern was that "Theories of meaning are usually applied to both speaker and listener as if the meaning process were the same for both" (p. 33)
- Skinner's view is that different environmental contingencies are operating for a speaker and for a listener, and must be treated as such
- The meaning of words is not to be found in a common cognitive processing system or physical referent, but rather in the contingencies, or the "sources of control" that evoke verbal behavior

## A Functional Analysis of Verbal Behavior

- Skinner (1957) identified three separate types of antecedent events, along with their related consequences, that control verbal behavior
- Motivating variables (MOs) (self)
- Nonverbal discriminative stimuli (NV S<sup>D</sup>s) (physical world)
- Verbal discriminative stimuli (V S<sup>D</sup>s) (largely other people)
- He also points out that these independent variables commonly interact with one another, and other variables, as types of multiple causation (Michael, Palmer, & Sundberg, 2011)

## How is the Intraverbal Different from the Mand, Tact, & Echoic?

<u>Antecedent</u>	<u>Behavior</u>	<u>Consequence</u>
• Motivation (MO)	<b>Mand</b>	Specific reinforcement
• Nonverbal S <sup>D</sup>	<b>Tact</b>	Generalized reinforcement
• Verbal S <sup>D</sup>	<b>Echoic</b>	Generalized reinforcement (w/ a match)
• Verbal S <sup>D</sup>	<b>Intraverbal</b>	Generalized reinforcement (w/o a match)

These are all called “**expressive language**” in traditional treatments

## How is the Intraverbal Different from the Mand, Tact, & Echoic?

<u>Antecedent</u>	<u>Behavior</u>	<u>Consequence</u>
• A cut on my finger	<b>“Band-Aid”</b>	receive a Band-Aid
•	(Mand)	
• See a Band-Aid	<b>“Band-Aid”</b>	“right”
•	(Tact)	
• Hear “Band-Aid”	<b>“Band-Aid”</b>	“right”
	(Echoic)	
• Hear “What do you put on a cut?”	<b>“Band-Aid”</b>	“right”
•	(Intraverbal)	

## Verbal Stimulus Control

- “In analyzing the stimulus control of verbal behavior, it is convenient to distinguish between instances in which the controlling stimuli are themselves verbal and those in which they are not” (Skinner, 1957, p. 55)
- We encounter verbal stimuli in many forms and antecedent configurations in our day-to-day interactions with the environment
  - the speech of others
  - print media
  - emails, texts, messaging
  - TV
  - radio
  - internet
  - books
  - signs
  - educational activities

## Verbal Stimulus Control

- Verbal S<sup>D</sup>s have the same causal status as nonverbal S<sup>D</sup>s in that they both acquire discriminative control over behavior through the process of differential reinforcement (Skinner, 1957)
- Skinner defines a verbal stimulus as “the product of earlier verbal behavior” (1957, p. 65)
- When accounting for the behavior of speakers and listeners we have “an interest in what happens to the verbal stimuli created by the speaker” (Skinner, 1957, p. 34)
- That is, verbal responses produce some type of response product, and these response products can have a discriminative function evoking other behaviors on the part of listeners, including one’s own self as a listener

## Verbal Stimulus Control

- For example, vocal speech produces auditory stimuli, while texting behavior produces visual stimuli
- Composing a text message produces visual response products that function as verbal S<sup>D</sup>s that may evoke additional behavior from the initial speaker (the texter) such as
  - self-textual behavior
  - self-intraverbal behavior
  - self-autoclitic behavior
  - self-editing
  - covert imagery
  - emotional (respondent) behavior
  - automatic reinforcement for a clever phrase

## Verbal Stimulus Control

- Receiving a text message is also a verbal S<sup>D</sup>, but now for the reader and can evoke
  - textual
  - intraverbal
  - copying a text
  - transcriptive responses
  - emotional responses
  - imagery
  - nonverbal behavior
  - avoidance behavior
  - automatic consequences
  - establish new MOs
  - establish new conditioned reinforcers and conditioned punishers

## Differences Between Verbal S<sup>D</sup>s and Nonverbal S<sup>D</sup>s

- Verbal S<sup>D</sup>s require a complex speaker and listener history to be effective
- Nonverbal stimuli are generally not the products of a speaker's verbal behavior, rather they are products of the physical environment (e.g., water v. "water," visiting a foreign country)
- Verbal S<sup>D</sup>s are readily available for a speaker and listener whereas nonverbal stimuli require the immediate support of the physical environment and are less readily available or portable
- Verbal S<sup>D</sup>s may be more fleeting (quick on-set off-set) than the often-static nature of the physical environment and nonverbal S<sup>D</sup>s (e.g., a writer)
- Disruptions, digressions, competing MOs, etc., may affect verbal S<sup>D</sup>s more than nonverbal S<sup>D</sup>s

## Verbal Stimulus Control and Intraverbal Behavior

- Verbal stimuli can evoke both speaker and listener behaviors
- We will focus on speaker behavior, specifically the intraverbal relation, but will return to a discussion of verbal stimulus control and listener behavior shortly as it can be used to teach intraverbal behavior
- Verbal stimuli that can evoke intraverbal behavior can be categorized into at least five different types of discriminations:
  - (1) simple
  - (2) compound
  - (3) verbal conditional
  - (4) verbal function-altering (Schlinger & Blakley, 1994)
  - (5) part of a multiple stimulus control configuration (Palmer, 2016)



## Verbal Stimulus Control and Intraverbal Behavior

- (1) A simple verbal discrimination involves a single-component verbal stimulus that evokes a non-matching verbal response. For example, a child says “meow” after hearing “A kitty says...”
- (2) A compound verbal stimulus involves two or more S<sup>D</sup>s that each independently evoke behaviors, but when they both occur in the same antecedent configuration, a new S<sup>D</sup> is generated. For example, saying “blue” after hearing “Red, white, and...”
- (3) A verbal conditional discrimination involves one verbal stimulus that alters the evocative and functional effects of another verbal stimulus in the same antecedent configuration. For example, when asked, “What do you eat with?” versus “What do you wash with?” the words “eat” and “wash” differentially affect the functional properties of the word “with”

## Verbal Stimulus Control and Intraverbal Behavior

- (4) Verbal stimuli can change the function of other stimuli occurring at a later point in time (Schlinger & Blakely, 1987, 1994). For example, if a child is told by a teacher “When I call your name (e.g., Zac), sing your part.”
- (5) Verbal S<sup>D</sup>s commonly participate with other independent variables and share the control of verbal behaviors. For example, when shown a red ball and asked “What color is this” and then asked “What shape is this” the verbal stimulus not only alters the evocative effect of the nonverbal stimulus, but both must share control for a correct response to occur

## Teaching Intraverbal Behavior to Children With Autism

- Assess the child’s overall verbal repertoires (e.g., VB-MAPP)
- Conduct the intraverbal subtest **if** the child’s VB-MAPP scores are at least in Level 2 (past 18 months old in terms of typical language development)

## VB-MAPP: Level 2

Level 2

*Interpreting the Level 2 Assessment Curriculum Placement and Writing IEP Goals*

**Figure 9-1**

Sample VB-MAPP Milestones Assessment for a child scoring in Level 2.

**VB-MAPP Milestones Master Scoring Form**

Child's name:	Chloe	Age:	5.5	Date:	7/20/08	Center:	MS	Tester:	
Date of birth:	2/18/04	Sex:		Test date:		Test site:		Test time:	
Age in months:	66	1	2	3	4				

LEVEL 3												
Word	Text	Concept	WHOLE	Part	Sound	Quantity	Memory	LABC	SP	Comp	Language	Raw
15												
14												
13												
12												
11												

LEVEL 2												
Word	Text	Concept	WHOLE	Part	Sound	Quantity	Memory	LABC	SP	Comp	Language	Raw
10												
9												
8												
7												
6												

LEVEL 1												
Word	Text	Concept	WHOLE	Part	Sound	Quantity	Memory	LABC	SP	Comp	Language	Raw
5												
4												
3												
2												
1												

**VB-MAPP**  
Master Scoring Form

<b>Child's name:</b> Jacob	<b>Sex:</b> Male
<b>Date of birth:</b> 10/20/00	<b>Score:</b> 11
<b>Age at testing:</b> 5; 10	<b>Date:</b> 5/10/12
	<b>Center:</b> MS
	<b>Test form:</b>
	<b>Test date:</b>
	<b>ABN form:</b>

**LEVEL 3**

Word	Text	Listener	SPWTS	Play	Social	Reading	Writing	LEPFC	V	Group	Lang	Math
15												
14												
13												
12												
11												

**LEVEL 2**

Word	Text	Listener	SPWTS	Play	Social	Reading	Writing	LEPFC	V	Group	Lang
10											
9											
8											
7											
6											

**LEVEL 1**

Word	Text	Listener	SPWTS	Play	Social	Reading	Writing	LEPFC	V	Group	Lang
5											
4											
3											
2											
1											

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## The VB-MAPP Intraverbal Subtest

- The goal is to identify a general level of intraverbal skills as compared to typically developing children
- 80 intraverbal questions are divided into 8 groups (levels)
- Each level contains increasingly complex intraverbal tasks
- The subtest has been field tested with 91 typically developing children and 262 children with autism (Sundberg, 2009; Sundberg & Sundberg, 2011)
- Download the IV subtest and instructions at [www.avbpress.com](http://www.avbpress.com) Click downloads and updates

# The VB-MAPP Intraverbal Subtest

## The VB-MAPP Intraverbal Assessment Subtest

Child's name:	Tester:
Date of birth:	Testing date (s):
Diagnosis if any:	Total score _____ (give a 0 or 1 for each item)
<b>Group 1: Animal sounds &amp; songs fill-ins)</b>	<b>Score</b> Write the exact response given by the child
A kitty says...	
Twinkle, twinkle, little...	
Ready, set ...	
The wheels on the bus go...	
Rock-a-bye...	
A dog says...	
Peek-a...	
The itsy bitsy...	
Head, shoulders, knees and...	
Happy birthday to...	
<b>Other:</b>	
<b>Other:</b>	
<b>Total points (10 points maximum):</b>	
<b>Group 2 (Name, fill-ins, associations )</b>	
What is your name?	
You brush your...	
Shoes and...	
You ride a...	
You flush the...	
You sleep in a...	
You eat...	
One, two...	
You wash your...	
You sit on a...	
<b>Other:</b>	
<b>Other:</b>	
<b>Total points (10 points maximum):</b>	

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# The VB-MAPP Intraverbal Subtest

## The VB-MAPP Intraverbal Assessment Subtest

<b>Group 3 (Simple What questions)</b>	<b>Score</b>	Write the exact response given by the child
What can you drink?		
What can fly?		
What are some numbers?		
What can you sing?		
What's your favorite movie?		
What are some colors?		
What do you read?		
What is outside?		
What's in a kitchen?		
What are some animals?		
<b>Total points (10 points maximum):</b>		
<b>Group 4 (Simple Who, Where, &amp; age)</b>		
Who is your teacher?		
Where do you wash your hands?		
Who builds a web?		
Where is the refrigerator?		
Who drives the car?		
Where do you take a bath?		
How old are you?		
Where are the trees?		
Who do you see on TV?		
Why do you use a Band-Aid?		
<b>Total points (10 points maximum):</b>		

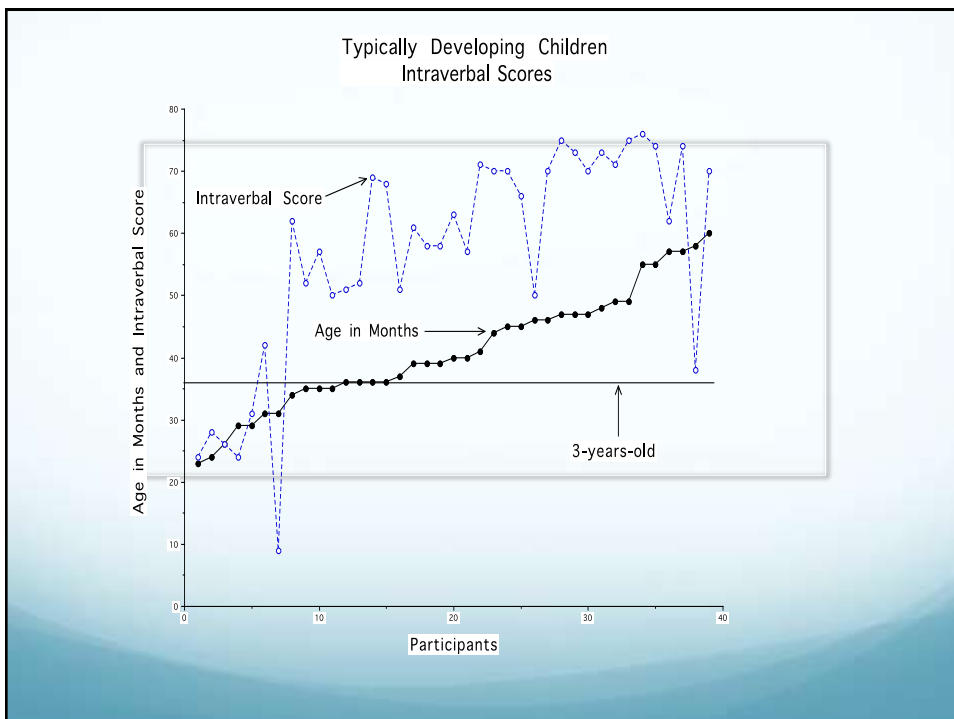
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## Interpreting the VB-MAPP Intraverbal Subtest

- Total number correct out of 80, 10 points for each level
- Types of errors (e.g., echoic, simple intraverbal control, rote or odd responses)
- Point of deterioration
- Nature of deterioration
- Scatter analysis
- Intervention should begin at a level or two prior to deterioration



## Teaching Intraverbal Behavior to an Early Learner: Simple Verbal Discriminations

- Use the acquisition of intraverbal behavior by typically developing children as a guide for an intraverbal curriculum
- The goal: Develop verbal stimulus control of intraverbal behavior
- Sequencing the curriculum is complicated
- The easiest types of intraverbal behaviors to teach are the same as those that occur early for many typical children (IV Subtest Group 1: **Simple verbal discriminations**)
- Minimal prerequisites (20-30 mands and tacts, early VB-MAPP Level 2), no tact or listener prerequisites for specific words

## Teaching Intraverbal Behavior to an Early Learner: Simple Verbal Discriminations

- Filling-in the missing words from songs and fun phrases, providing the sounds that animals make, socially interactive games (use MOs and nonverbal stimuli) (e.g., Duck, duck..., Ready, set...)
- These activities begin to develop verbal stimulus control by **teaching the child to make a non-echoic response to a verbal stimulus**
- Note that listener discriminations also develop verbal stimulus control and should be a major component of a daily program
- There are several ways to teach early intraverbal behavior, but most involve the same basic teaching procedures used for teaching other forms of verbal behavior (e.g., echoic prompting, fading, reinforcing approximations)
- Use mostly NET teaching format, and age/developmentally appropriate content

## Teaching Intraverbal Behavior to an Early Learner: Simple Verbal Discriminations

- Establish a strong repertoire of simple intraverbal relations prior to moving to compound, conditional, etc. (100s of IVs from Group 1&2)
- Don't rush to add more words to the verbal S<sup>D</sup>, more difficult parts of speech, or complex VB (e.g., feelings, concepts, negation, opposition)
- When ready, add intraverbal subtest level 2 type tasks (verbal fill-ins) involving verbs, verbal associations, common phrases, names, etc.
- Start with in-context intraverbal fill-ins if appropriate (nonverbal context can help to establish non-rote out of context responding)
- For example, accompany an activity with verbal behavior such as "Wash your hands." These verbal stimuli are correlated with the sink, water, etc., and can provide opportunities for intraverbal teaching

## Teaching Intraverbal Behavior to an Early Learner: Simple Verbal Discriminations

- Use listener discrimination procedures to capitalize on support from nonverbal stimulus control
- Specifically, listener responding by function, feature, and class (LRFFC)
- A child learns to (receptively) identify an item or activity without hearing the specific name of the item or activity
- Rather, by hearing the item or activity described (talked about) by its function, its features, or its membership in a class (category)
- This procedure establishes valuable verbal stimulus control, and sets up a future intraverbal transfer opportunity



## Listener Responding by Function, Feature, and Class (LRFFC)

Verbal stimulus

Nonverbal array

“You kick a...”



## Teaching Intraverbal Behavior to an Early Learner: Simple Verbal Discriminations

- The LRFFC trial consists of presenting the child with the array of pictures and the verbal stimulus (e.g., “You kick a...”)
- Following a correct LRFFC trial (e.g., “You kick a...”), praise the child and remove the visual array of stimuli by covering up the target picture, or sliding the array away from the child
- Then, after a few seconds of delay, present the target fill-in verbal stimulus (e.g., “You kick a...”), use the standard reinforcement and correction procedures
- If the child consistently provides a correct IV response when the pictures are removed, then begin to include distracter trials and introduce new LRFFC to IVs

## Teaching Intraverbal Behavior to an Early Learner: Simple Verbal Discriminations

- The simple verbal discrimination procedures can be expanded in a variety of ways
- For example, new songs, different missing words, new contexts, different people, settings, tones, melodies, carrier phrases, etc.
- Gradually move away from MO, echoic, and nonverbal S<sup>D</sup> control
- Reverse the order of the original intraverbal, mix and vary
- Intersperse relevant nonverbal activities, mands, tacts, and LDs
- First-trial probe data on the target intraverbal relations should be conducted on a regular basis
- Watch for barriers (e.g., rote responding, echolalia, avoidance)

## Teaching Intraverbal Behavior to an Early Learner: Simple Verbal Discriminations

- Reinforce novelty, emerging behaviors, emerging stimuli and consequences etc.
  - Vary the order of the trials
  - Use mixed VB training format
  - Differentially reinforce highest quality (e.g., biggest reinforcer IV trials)
  - Use errorless correction procedures
  - Program for generalization
- Make the activities as functional as possible for the child (NET)
- Make it fun

## Teaching Intraverbal Behavior to an Intermediate Learner: Compound Verbal Discriminations

- “The nature of the stimulus control in intraverbal behavior is shown by responses to verbal stimuli containing more than one word...The compound stimulus is a much more specific occasion than either part taken separately....The more complex the stimulus pattern, the more specific the verbal occasion, and the stronger the control exerted over a single response” (Skinner, 1957, p. 76).
- A compound verbal stimulus involves two or more S<sup>D</sup>s that each independently evoke behaviors, but when they both occur in the same antecedent configuration, a new S<sup>D</sup> is generated
- For example, “What fruit is red?” Individually, “fruit” might evoke any intraverbal from that class, as “red” might evoke any member from that class, but collectively the two verbal stimuli narrow the available correct responses (e.g., “Apple,” “Strawberry”)

## Teaching Intraverbal Behavior to an Intermediate Learner: Compound Verbal Discriminations

- Beginning the verbal combination of the parts of speech (e.g., adjective-noun, verb-noun, preposition-noun)
- Prerequisites: The specific words used as verbal stimuli and verbal responses must already be at strength in child’s repertoire as tacts, listener skills, and simple intraverbal discriminations (e.g., strawberry): Mid to upper Level 2 VB-MAPP score, and a solid repertoire of simple intraverbal discriminations
- The compound stimulus control can be established first in a listener discrimination using LRFFC then use transfer procedures to establish intraverbal relations

## LRFFC to Intraverbal Transfer

### Verbal Antecedent

What has a tail?

### Array



### Response

Child touches the cat and says "cat"

- The basic components of the intraverbal relation are present ("Tail" and "Cat")
- Simple task for transfer: Fade out the picture of the cat
- Target Intraverbal: Verbal S<sup>D</sup> "What has a tail?" evokes the verbal response "Cat"
- Generalize to different animals

## LRFFC to Intraverbal Transfer

### Verbal Antecedent

What has a tail?

### Array



### Response

Child touches the cat and says "cat"

## Teaching Intraverbal Behavior to an Intermediate to Advanced Learner: Verbal Conditional Discriminations

- Conditional discrimination: “When the nature or extent of operant control by a stimulus condition depends on some other stimulus condition” (Michael, 1993, p. 14)
- Matching to sample always involves two stimuli that relate to each other (conditional discrimination)
- Many advanced intraverbal skills involve conditional discriminations, but the antecedent stimuli are all verbal, and affect each other

## Verbal Conditional Discriminations (VCD)

- Many children with autism have a difficult time acquiring intraverbal behavior beyond simple verbal discriminations (“A kitty says...”), despite strong mand, tact, and LD skills. Most intraverbal responses are multiply controlled by a configuration of verbal stimuli
- What constitutes a verbal conditional discrimination and an intraverbal response?
- Two components of a verbal stimulus where one verbal stimulus alters the evocative effect of the second verbal stimulus, and collectively they generate a new  $S^D$ , that evokes a differential intraverbal response

Antecedent

Response

- Verbal  $S^D_1$  alters verbal  $S^D_2$  to  $S^D_3$       Intraverbal Response

## Verbal Conditional Discriminations (VC<sup>D</sup>)

- Examples...
- | <u>Antecedent</u>                      | <u>Intraverbal Response</u> |
|----------------------------------------|-----------------------------|
| • “What’s <b>your dog’s</b> name?”     | “Gus”                       |
| • “What’s <b>my dog’s</b> name?”       | “Piper”                     |
| • “What’s <b>your brother’s</b> name?” | “Matt”                      |
| • “What’s <b>my brother’s</b> name?”   | “Carl”                      |
- “Name” has 4 different S<sup>D</sup> effects, established by prior verbal S<sup>D</sup>s
- VC<sup>D</sup>=VS<sup>D</sup><sub>1</sub> alters the evocative effect of VS<sup>D</sup><sub>2</sub> or vice versa, to S<sup>D</sup><sub>3</sub>
- A correct response is dependent on VC<sup>D</sup> between words, if individual words are the source of control errors will occur

## Verbal Conditional Discriminations

- There often is some intraverbal stimulus control demonstrated, but the control is lost when verbal conditional discrimination are involved
- | <u>Verbal S<sup>D</sup></u>    | <u>Response</u> |
|--------------------------------|-----------------|
| • “Where is the refrigerator?” | “Cold”          |
| • “What grows on your head?”   | “Plants”        |
| • “Where are the trees?”       | “Leaves”        |
| • “Where do you eat?”          | “Spoon”         |
| • “What helps a flower grow?”  | “Up”            |
- Rotating WH questions (e.g., “Who,” “When,” “Where”) usually are hard because they alter the S<sup>D</sup> effects of other verbal stimuli



## The VB-MAPP Intraverbal Subtest

The VB-MAPP Intraverbal  
Assessment Subtest

Group 7 (Multiple part questions)	Score	Write the exact response given by the child
What makes you sad?		
Name some clothing.		
Tell me something that is not a food.		
What helps a flower grow?		
When do we set the table?		
What do you do with money?		
Why do people wear glasses?		
Where do you put your dirty clothes?		
What is something you can't wear?		
What's something that is sticky?		
<b>Total points (10 points maximum):</b>		
<b>Group 8 (Multiple part questions)</b>		
What's in a balloon?		
What do you take to a birthday party?		
Where do you go if you're sick?		
Why do you wear a coat?		
What do you do before bed?		
What's your last name?		
What do you put in a sandwich?		
What musical instrument has strings?		
What do you do with an umbrella?		
Why do adults need to get gas?		
<b>Total points (10 points maximum):</b>		

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## Using LRFFC to Teach Verbal Conditional Discriminations and Intraverbal Behavior

- First, each part of the antecedent verbal configuration must be in the repertoire (e.g., 'wear' "grow" & "head" "outside") with generalized stimulus and response classes
- Then brought together while fading out the nonverbal array (LRFFC to IV transfer)



## LRFFC to Intraverbal Transfer Involving a Verbal Conditional Discrimination

<u>Verbal Antecedent</u>	<u>Array</u>	<u>Response</u>
“What animal has a tail?”		Child touches the cat
“What toy has a tail?”		Child touches the kite

- Task for transfer: Fade out the pictures
- Target Intraverbals: “What animal has a tail?” --> “Cat”
- “What toy has a tail?” --> “Kite”
- Next step: Generalize to different toys, animals, and features



## Teaching Intraverbal Behavior to an Intermediate to Advanced Learner: Verbal Function-Altering Operations

- The fourth type of verbal discrimination “verbal function-altering effect” (Schlinger & Blakely, 1994, p. 48) is relevant to intraverbal behavior as well
- Verbal stimuli can alter the function of other verbal stimuli occurring at a later point in time, and evoke intraverbal behavior at that time (Skinner, 1957)
- For example, if a child is told by his parent “If a stranger asks you to come with him, tell him ‘no’ and run away”
- This initial verbal stimulus alters the future evocative effect and the function of hearing “Come with me” to a new verbal  $S^D$  that now evokes intraverbal behavior consisting of saying “No”

## Teaching Intraverbal Behavior to an Intermediate to Advanced Learner: Verbal Function-Altering Operations

- Under different circumstances being asked to go with someone has other functions
- These types of verbal function-altering effects play a role in several aspects of complex behavior such as problem solving social interactions, and conversations
- However, little research has been conducted on this type of verbal stimulus control

## Teaching Intraverbal Behavior to an Intermediate to Advanced Learner: Intraverbal Control

- Palmer (2016) has suggested that the term “intraverbal control” be used to identify situations where a verbal stimulus participates with other variables to evoke a response
- Verbal S<sup>D</sup>s commonly participate with other independent variables and share the control of verbal behaviors
- For example, when shown a red ball and asked “What color is this” and then asked “What shape is this” the verbal stimulus not only alters the evocative effect of the nonverbal stimulus, but both must share control for a correct response to occur
- Intraverbal autoclitic frames

## Conclusion

- Intraverbal behavior is dependent on verbal stimulus control
- The analysis of verbal stimulus control can provide a framework and long-term guidance for intraverbal assessment and intervention
- Intraverbal behavior does not necessarily emerge from tact and listener training for early and intermediate learners
- Typical intraverbal language development can serve as an important guide in the development of intraverbal behavior for children with language delays
- Behavior analysis in general, and Skinner’s analysis of verbal behavior in particular, provide a conceptual basis for intraverbal development