Contracting
Discrete Trial Training (DTT)
Natural Environment Training (NET)
Precision Teaching (PT)
Structured 1:1
Lovaas
Timed Trials
Distributed Practice
Natural Language Paradigm (NLP)
Errorless Learning
Mixed Trials
INTERSPERSAL
Verbal Behavior
Massed Trials
Massed Practice
Personal Goal Setting
Token Economy
Direct Instruction (DI)
Personalized System of Instruction (PSI)
Choral Responding
Group Instruction
EIBI
Error Correction

Alter *behavior* (not labels):
- Focuses on behavior, not personality or traits
- Focuses on current causes (events in environment)
- Alters environmental events to effect change
- Uses behavioral procedures (e.g., differential reinforcement)
- Describes behavior as an A-B-C 'LEARN' unit
- Describes intervention procedures
- Measures behavior change

- Poor language skills
- Insensitive to others
- Difficulty attending to others
- May not follow directions
- May prefer objects to people

- Repetitive play
- Repetitive movements
- Echolalia
- Indifferent to praise
- Difficulty generalizing
- Splinter skills

Q: Will a child with autism learn without specific, intense teaching?

A: Not likely. If a child:
- ✓ is not readily learning from environment
- ✓ requires frequent prompts to respond

Learning is unlikely to just "emerge"

Typical vs. Language Delayed

Same rate   Slower rate   Faster rate

🟥 = Language delayed   🟦 = Normal development

We must teach children to learn at a faster rate so they can 'catch up' to normally developing children.

- The child will learn in a group setting without specific, intense teaching

Starting point…

- If the child is NOT currently acquiring skills while in a group setting, then a group setting is unlikely to meet his *current* learning needs.

- Focused ABA: treatment for a limited number of targets

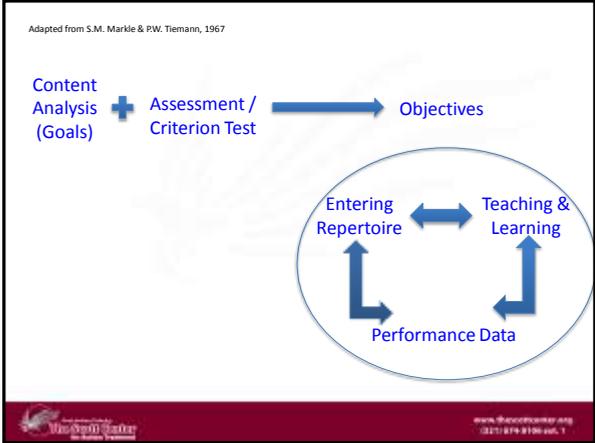- Comprehensive ABA: multiple targets across all developmental domains

Retrieved July 10, 2013 from:
http://www.bacb.com/Downloadfiles/ABA_Guidelines_for_ASD.pdf

Definitions

- Additional terms…
- Instructional Design
- Philosophy of program development*
- How to develop a curriculum and programs
- Programming for Generalization

OVERVIEW

- **Assessment:** evaluation of needs, formal or informal, usually against some standard
- **Instruction**: HOW you teach; what procedures you use (e.g., DTI, IT, Chaining, etc.)
- **Curriculum**: WHAT to teach (specific exemplars, steps ranging from simple to complex); the specific materials used to deliver instruction
  - Task: Develop programs that give both curriculum AND most efficacious teaching procedures**

Adapted from S.M. Markle & P.W. Tiemann, 1967

Content Analysis (Goals) + Assessment / Criterion Test → Objectives

Entering Repertoire ↔ Teaching & Learning

Performance Data

- Focus on learning outcomes (specific performance, direct observation) (i.e., behavioral, effective)
- Outline a basic framework for what to do, how to do it, when to do it and how to know if your objective has been achieved; (technological)
- Allow for flexibility in order to individualize the program for a child
- Encourage research and innovation within an overall structure (analytic)
- Provide direction for development of new objectives in related areas

Philosophy

- Important (focus on behavioral cusps)
- Conceptually systematic
- Build on previously mastered skills
- Facilitate generalization
- Consistent with what is known about child growth and development (when appropriate)
- Scientific understanding of teaching and learning (evidence-based)
- Representative of instructional strategies and activities to meet the needs of students with varying abilities and needs

CONSIDERATIONS

- Standard Protocols (long form)
- Client-Specific Program Components (short form)
- Suggested exemplar list(s)
- Resources (articles, book chapters)
- Data sheets* (if general data sheets are not applicable)

COMPONENTS

1. Define skill you want to teach & develop purpose
2. Gather resources
    - Curriculum guides, lit search, content expert
3. Draft outline of program
4. Ask a content expert to give feedback
5. Write your program
6. Pilot your program with one learner
7. Modify the program as needed

PROCESS

- Why are we teaching this program?
- This is NOT a re-statement of the child's goal
- How will this skill help the child in the broader context of his life?
- Should be written in parent-friendly language
- Define the scope of the behavior

PURPOSE

INCORRECT: The purpose of this program is to teach the child to imitate others' actions.

CORRECT: The purpose of this protocol is to build a generalized imitation repertoire. Typically developing children learn complex behaviors through observing and imitating others. If a child does not have the capacity to imitate others, he will be hindered from learning complex behavior. This program teaches the child to pay more attention to the people around him and to become excited about what others are doing. Further, generalized imitation allows caregivers to use modeling as a prompting strategy. This skill can be extended to other areas such as self-help skills (e.g., drinking from a cup, washing hands), academic skills (e.g., writing, cutting), play (e.g., jumping cars, rolling dice), and social skills (e.g., smiling when others smile) In order to demonstrate understanding, the child must be able to 1) attend to a motor action, 2) appropriately respond when presented with the instruction and 3) not respond with the same response when they see a different motor action.

DEFINE

- No need to reinvent the wheel
- Easy to understand language
- Sets context for why this skill is important
- Describes procedures specifically
- Information on "entering repertoire" necessary for program
- Includes ideas for follow-up steps or programs
- May include ideas for exemplars

Gathering

- Procedures are typically based on clinical data
- May or may not be based on published research
- Will NOT incorporate research that was conducted subsequent to publication of the guide!!!!!
- Some of the older books are EXCELLENT resources, but we may have figured out better ways to do things since they were published

CAUTION!

- *A Work in Progress* (Leaf and McEachin, 1999)
- *Behavioral Interventions for Young Children With Autism* (Maurice, Green & Luce, 1996)
- *Making a Difference* (Maurice, Green & Foxx, 2001)
- *Verbal Behavior Analysis* (Greer & Ross, 2008)
- *Teaching Developmentally Delayed Children: The ME Book* (Lovaas, 1981)
- *Teaching Individuals with Development Delays* (Lovaas, 2002)
- *Teaching Language to Children With Autism or Other Developmental Disabilities* (Sundberg & Partington, 1998)

EXAMPLES

Look for:
- Literature reviews
- Seminal articles
- Recent research
- Component analyses
- Conflicting outcomes*

EMPIRICAL SUPPORT

- Be humble; always ask for feedback
- Scientific skepticism
- Can help prevent you from repeating mistakes others have made before you

EXPERTISE

- Name of program
- How will you determine success of program?
- Assessment of entering repertoire
- Selection of teaching procedure*
- Plans for generalizing the skill
- Plans for bringing the skill under the control of naturally occurring stimuli (application)
- Response definitions
- Phases / Increasing complexity over time

OUTLINE

Instruction that is carefully designed to produce skills that **are not directly taught**

You get the biggest bang for your buck…

GENERATIVITY

- Emerged from both basic behavioral work and clinical research using **fluency**
- When presented with new environmental requirements, these behaviors can combine in new ways that correspond to higher level complex skills

- Basic number writing, addition, subtraction, and multiplication skills are the fluent components necessary to learn how to correctly factor an equation with ease.
- Effective writing skills require fluent component elements like basic letter and word writing speed, sentence combining, and sentence sequencing skills.

- Comprehending questions, requests, and comments that an individual has not heard before and producing utterances that have not been produced before.
- Both skills are crucial in the development of flexible and functional, not stereotypical and rote, language.

- Matching
  – Visual, Auditory
- Imitation
  – Objects, Actions
- Echoics
  – Sounds, Words, Phrases
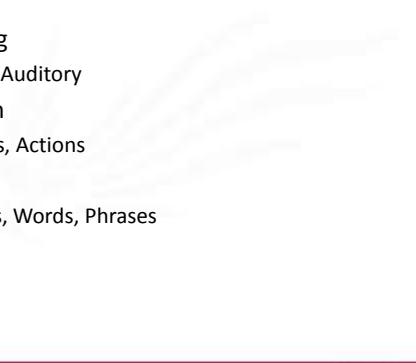
CUSPS

- Programs must explicitly focus on generalization
- Generalization does NOT occur automatically
- Generalization is NOT an afterthought or side-effect
- Generalization is THE central goal of intervention

Train and Hope

- Teach skills across many environments
- Teach with many teachers
- Teach during many times of day
- Do NOT do the same thing the same way all of the time
- When skills are learned in DTT, make sure to practice them in natural settings
- Parents must practice all new skills as often as possible

Planning for Generalization

Generative Protocols

www.thecenter.org
(321) 674-8106 ext. 1

Instruction in which exemplars are systematically arranged in a matrix so that some combinations are taught and others emerge *without direct* teaching

Matrix Training

www.thecenter.org
(321) 674-8106 ext. 1

	OBJECTS				
push					
pull					
ACTIONS / kick					
throw					
catch					

	OBJECTS				
	Ball	Wagon	Car	Shoe	Frisbee
Push					
Pull					
ACTIONS / Kick					
Throw					
Catch					

	OBJECTS				
	ball	wagon	car	shoe	frisbee
push					
pull					
ACTIONS / kick					
throw					
catch					

- Action-object
- Object-location
- Object-action
- Expression-person
- Object-preposition-location
- Carrier phrases
- Adjectives
- Reading and spelling

Possible Combinations

Instruction in which exemplars are *systematically* arranged so that combinations are taught and an exponential number emerge *without direct* teaching

Equivalence

	Set 1	Set 2	Set 3	Set 4
A	Vehicles (picture)	Clothes (picture)	Foods (picture)	Animals (picture)
B	Car	Pants	Apple	Dog
C	Truck	Shirt	Banana	Cat
D	Plane	Socks	Drink	Fish
E	Motorcycle	Shoes	Taco	Elephant

	Set 1	Set 2	Set 3	Set 4
A	Item 1	Item 2	Item 3	Item 4
B	Feature 1	Feature 1	Feature 1	Feature 1
C	Feature 2	Feature 2	Feature 2	Feature 2
D	Function	Function	Function	Function
E	Class	Class	Class	Class

PHASE 1
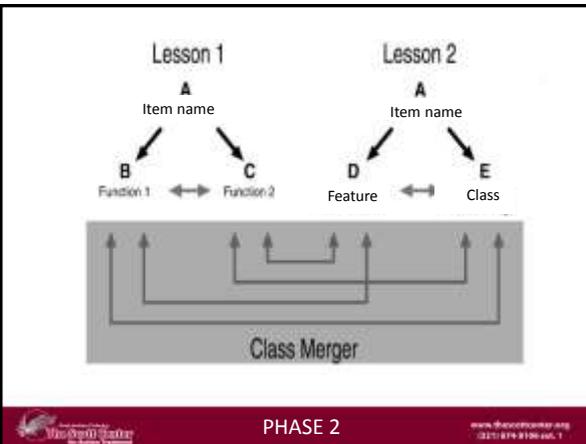
PHASE 2

Complex Verbal Behavior

Retaining high rates of correct responding despite infrequent reinforcer delivery

- Thin your schedule of reinforcement in early intervention programming or 1:1
- Build reinforcers within the task
- Start moving away from tangible reinforcers for learned responses
- If social reinforcers are not established, implement a token system

Resistance to Extinction

Verbal behavior under control of multiple stimuli

- Must establish fluent and varied mand, tact and intraverbal repertoire
- This is reciprocity of language
- Incorporates multiple exchanges
- Must train siblings and/or peers

Conversational Language

- Verbal behavior under motivational control
- Assumes some additional learning repertoires
- Decreases inappropriate mands
- Decreases 'performance anxiety'

Mands for Information

- Establish basic mand repertoire
- Remove all prompts (including verbal ones)
- At intermediate level, interrupt response chains (e.g., movie clip)
- At the advanced level, give incomplete instructions or complex problems

Mands for Information

- Making 'new' from old functional responses
  - Generalization across verbal operants
- Learning rules for language
  - "ed", "ing", "s"
- Verb noun or adjective combinations
  - Learned "green" and "toad" separately; says "green toad" without additional training
  - Can read novel words from known "phonics" responses

Language Re-combinations

- Mixed trials with different function of the same word
  – Training across operants
- Mixed trials with different words
  – Training across exemplars (within operants)
- Teaching discriminated response chains

Language Re-combinations

- Across setting
- Across people
- Across time (maintenance)
- Across function
- Across equivalent stimuli

Response Transfer

- Disruptive behaviors (e.g., 'tantrums')
- Self stimulatory behaviors
  – Low magnitude and Response reduction
- Train teachers' aide to be a behavior analyst:
  – Prompt correct responses
  – Reinforce appropriate pro-learning
  – Stop and redirect
  – Extinguish
  – Record data

Disruptive Behaviors

- Test for generalized consequences
  - Try to teach a new response with praise only
  - Try to decrease a known response with **mild** social disapproval
- Establish generalized S^p
  - "pair" mild social disapproval with the removal of conditioned and primary reinforcers

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- Who wants to play ball? *I do*
- Who needs to go the bathroom? *Me*
- Which game will you play during recess? *Soccer*
- Who needs a Kleenex? *I need one, please*

Mand-Intraverbal

- Sight of wet clothes. *Is it raining?*
- Sound of the recess bell. *Can I go out ?*
- Sight of error on the worksheet. *Can I have an eraser?*
- Sight of Worksheet completion. *How did I do?*
- Sound of the plane. *Can I go see the plane?*

Mand-Tact

- Who needs help with their task sheet? *I do*
- Time to write (Sight of complete workbook) *Can I have another workbook*
- Complete your drawing (Sight of broken pencil) *Can I have another pencil*
- Do you need help?(Stopped responding) *Yes*

Mand-Intraverbal-Tact

- Take out your book? *I can't find it*
- Who is done? *I am*
- How is the weather? *Rainy*
- Where is the missing ___? *Under the table*
- Who has a red shirt today? *I do*

Tact-Intraverbal

- If you have a red shirt, line up
- If you are done, raise your hand
- If you are *not* done raise your hand
- Start writing
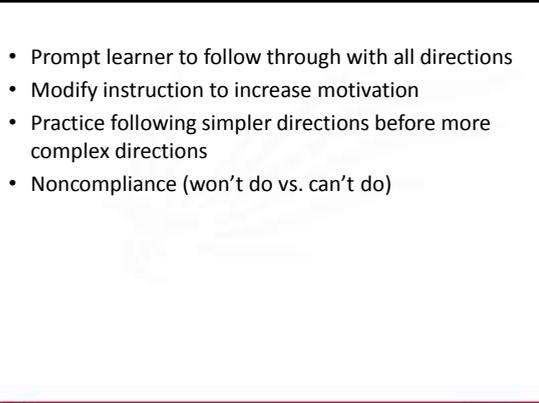
Complex Mand Behavior

- If you have a red shirt, go to the red group
- If you are done, go to the circle time area
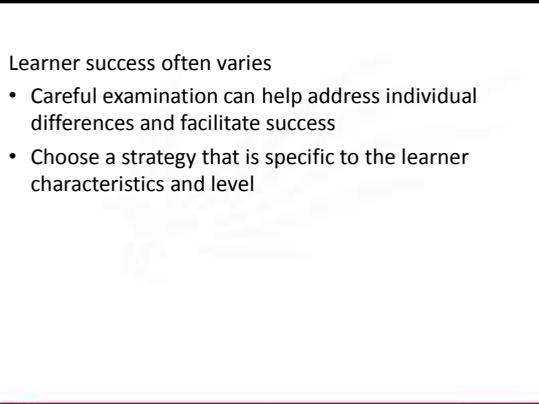- Start writing at the bottom of the page
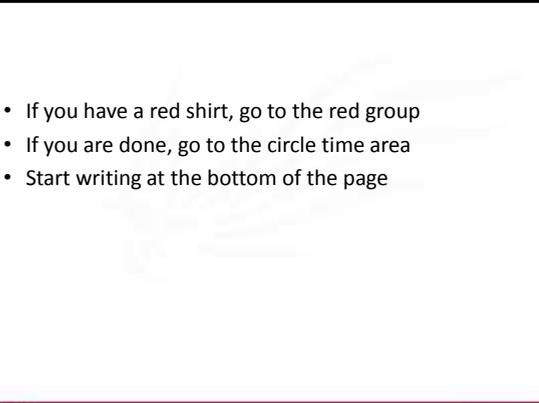
EXAMPLES

- Prompt learner to follow through with all directions
- Modify instruction to increase motivation
- Practice following simpler directions before more complex directions
- Noncompliance (won't do vs. can't do)

COMPLIANCE

Learner success often varies
- Careful examination can help address individual differences and facilitate success
- Choose a strategy that is specific to the learner characteristics and level

SUMMARY