From Discrete Trial to Real Life Applications

August 9, 2018
National Autism Conference

Rebekah Houck, M.Ed., BCBA
Amy Naccarelli, Ed.D., BCBA

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.

Objectives

- Participants will be able to identify:
  - Methods as described in the literature for promoting the generalization of skills in the classroom
  - Considerations for programming, target selection, lesson plan development, and goal setting to support students in generalizing skills from discrete trial instruction to real life applications
  - Barriers to implementation when moving from discrete trial instruction to real life applications

Today's Agenda

- Myths and Dimensions of ABA
- History of DTT and Generalization
- Technical Analysis of Atomic Repertoires
- Real Life Applications of Adaptive Behavior
- Integrated System of Instruction
- Staff and Parent Training
- Classroom Examples
- Barriers to Implementation
- Ethical and Cultural Considerations
- Getting Started

Word Cloud Activity

What word comes to mind when you hear: GENERALIZATION

Respond at **PollEv.com/nac129**

Text **NAC129** to **22333** once to join, then text your message

Myth #1 ABA is Only for Children with Autism

Applied behavior analysis (ABA) is a science. It is often referred to as an intervention for children with autism. Actually, teaching approaches based on ABA are effective for everyone.

- Organizational behavior management
- Gerontology
- Health/ fitness
- Animal behavior
- Gambling
- Environment / sustainability

Implications of an Advice-Giving and Teacher Role on Language Production in Adults With Dementia

Katinka Dijkstra, PhD,[1] Michelle Bourgeois, PhD,[1]
Gina Youmans, PhD,[2] and Adrienne Hancock, PhD[3]

Purpose: The purpose of the two studies described in this paper was to assess whether adults with dementia could assume an advice-giving role (Study 1) and a teacher role (Study 2) despite their cognitive impairments. So far, no research on adults with dementia has compared language production in a social conversation condition with that in an advice-giving condition. dementia successfully taught students to prepare the recipes. However, the experimenter needed to prompt the adults with dementia more often than they did the older adults without dementia in order to get them to finish the cooking task. **Implications:** Both studies demonstrate that preserved discourse and role-related abilities in adults with dementia may allow

(Ward, 2015)

# Myth #2 DTT is Only for Young Children

1:1 instruction or "DTT" often includes discrete trials. Discrete trials are just one of many types of procedures for arranging behavioral contingencies. They have a long history in applied behavior analysis, experimental psychology and the experimental analysis of behavior.

(Hetzler, 2016)

Myth #3 ABA (DTT) is Done at a Table

Applied Behavior Analysis is not restricted to one environmental area. On the contrary, Applied Behavior Analysis is inherently concerned with individuals' ability to generalize information; which is often accomplished by varying the location and manner in which skills are taught.

(Ward, 2015)
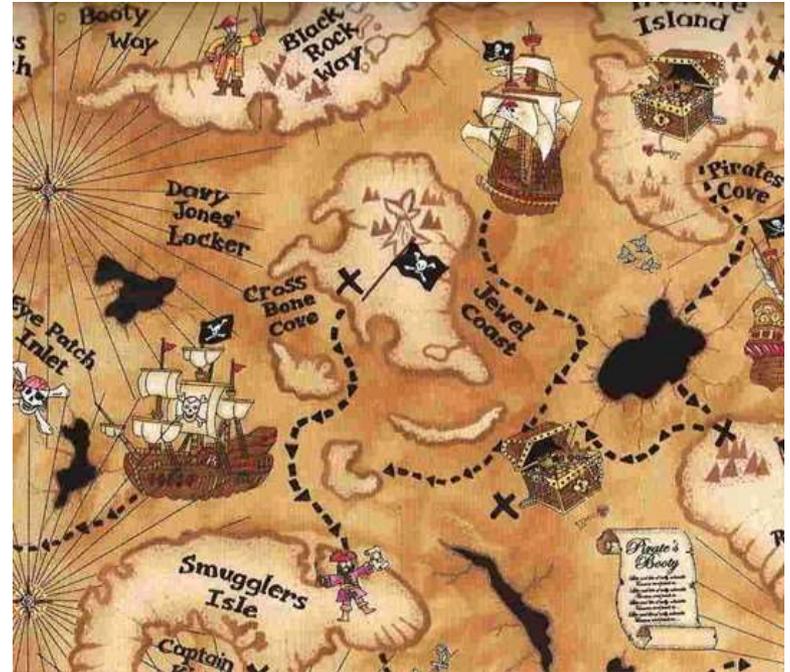
Myth #4 ABA Techniques are Too Simplistic
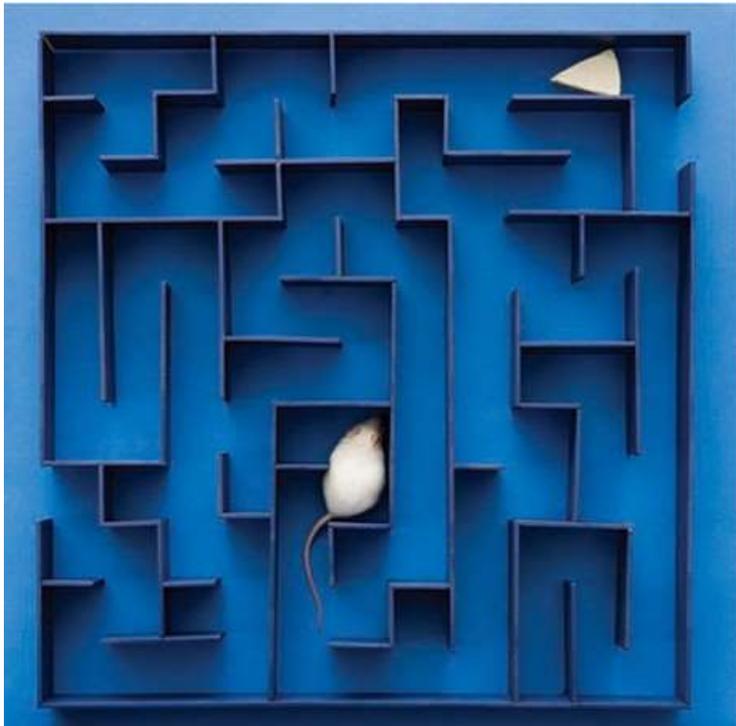
ABA is not only for basic, simple responding. ABA can accommodate enriched and complex responding that's structure becomes looser as learners progress.

(DiFalco, 2016)

Myth #5 ABA Only Use Edibles as Reinforcers

Primary reinforcers –
unlearned

Conditioned
reinforcers – learned,
by being paired with a
primary reinforcer

Social reinforcers –
involve other people

(Kelly, 2008)

7 Dimensions of ABA

Generality - skills/ behavior occur in environments other than where they were discretely taught.

Effective - interventions are monitored to evaluate the impact on the target behavior.

Technological - procedures are described clearly and concisely so that other may implement accurately.

7 Dimensions

Applied - socially significant behaviors are selected.

Conceptually Systematic - interventions consistent with principles demonstrated in the literature.

Analytic - decisions are data based.

Behavioral - observable and measurable behaviors are targeted.

(Baer, Wolf, & Risley, 1968; Cooper, Heron, & Heward, 2007)

Skinner's Vision

Vilardaga (2009) suggests that ABA is in "many ways more influential, but it's scope and vision have narrowed."

A History of Discrete Trial …

Discrete = small unit of instruction; a method for "individualizing and simplifying instruction."

- Precise format

- Clarifies teaching situation

- Has a beginning and an end

(Smith, 2001)

DTT: Benefits and Limitations

Benefits:

- Use of prompts in the antecedent condition
- Increased desired behavior
- Strengthen incompatible behavior
- Arranging a reinforcing enriched environment
- Stimulus Control of learner repertoires
- High number of training trials
- Progressive steps in curriculum

Limitations:

- Mainly teacher initiated
- May generate rote responding
- Requires procedures to ensure generalization
- Lack of powerful and immediate reinforcers readily available
- All operants are not easily contrived (Mand, IV)
- Non-naturalistic setting

(Sundberg & Partington, 1999; Smith, 2001; Dib & Sturmey, 2007)

(Sundberg & Partington, 1999)

A History of Generalization . . .

1950   **1953**   **1968**   **1971**   **1977**

Concept Formation (Keller & Schoenfeld)	Science and Human Behavior (Skinner)	Some Current Dimensions of Applied Behavior Analysis (Baer, Wolf & Risley)	Stimulus Equivalence (Murray Sidman)	An Implicit Technology of Generalization (Stokes & Baer)

Train and Hope

- It is usually "hoped" that some generalization may occur, which will be welcomed yet not explicitly programmed (p. 351).
- Almost 50% of applied literature in 1977 uses this intervention for generalization probes.

JOURNAL OF APPLIED BEHAVIOR ANALYSIS   1977, **10**, 349-367   NUMBER 2 (SUMMER) 1977

AN IMPLICIT TECHNOLOGY OF GENERALIZATION[1]

TREVOR F. STOKES AND DONALD M. BAER

THE UNIVERSITY OF MANITOBA AND THE UNIVERSITY OF KANSAS

Traditionally, discrimination has been understood as an active process, and a technology of its procedures has been developed and practiced extensively. Generalization, by contrast, has been considered the natural result of failing to practice a discrimination technology adequately, and thus has remained a passive concept almost devoid of a technology. But, generalization is equally deserving of an active conceptualization and technology. This review summarizes the structure of the generalization literature and its implicit embryonic technology, categorizing studies designed to assess or program generalization according to nine general headings: Train and Hope; Sequential Modification; Introduce to Natural Maintaining Contingencies; Train Sufficient Exemplars; Train Loosely; Use Indiscriminable Contingencies; Program Common Stimuli; Mediate Generalization; and Train "To Generalize".

DESCRIPTORS: generalization, treatment-gain durability, followup measures, maintenance, postcheck methodology

Traditionally, many theorists have considered generalization to be a *passive* phenomenon. Generalization was not seen as an operant response that could be programmed, but as a description

Schoenfeld, 1950, p. 168ff.). Thus, generalization was something that happened, not something produced by procedures specific to it.

If generalization seemed absent or insignifi-

Sequential Modification

Once generalization probes occur AND if generalization is found to be absent or deficient, procedures are then initiated systematically in every non-generalized condition.

- An extension of train and hope
- But a systematic one
- Focus on the consequence condition

(Stokes & Baer, 1977)

Naturally Maintaining Contingencies

Choosing those behaviors to generalize that will contact reinforcement that is naturally maintained elsewhere.

(Stokes & Baer, 1977)

Behavior Traps
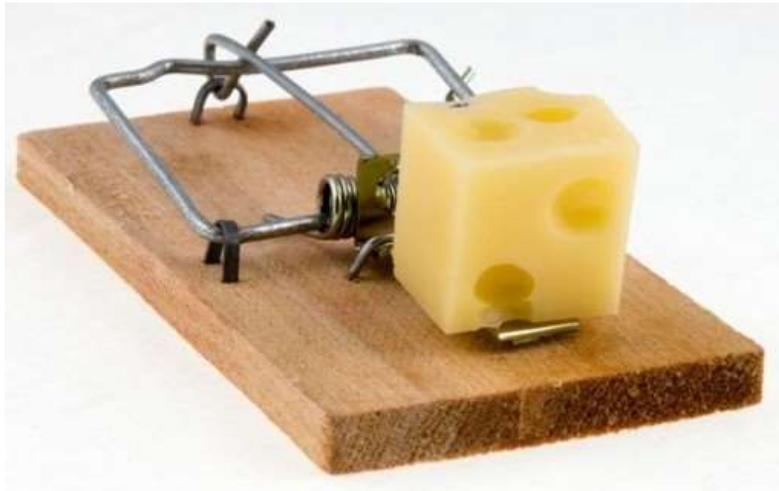
- Identify your prey

- Find powerful bait

- Set the trap

- Maintain your trap

- Appraise your catch

(Stokes & Baer, 1977; Alber & Heward, 1996)

Train Sufficient Exemplars

- One exemplar, then another, then another
- Stimulus generalization
- Response generalization

Example:

- Teach sufficient examples of antecedent stimuli
- Practice a wide variety of responses

(Stokes & Baer, 1977; Bord, Sidener, Reeve, & Sidener, 2017)

Train Loosely

Vary noncritical aspects of the instruction setting during and across teaching sessions

Example:

- Change position
- Change tone of voice
- Change facial expression
- Dress differently
- Vary lighting, temperature, noise

(Stokes & Baer, 1977)

Use Indiscriminable Contingencies

The learner cannot discriminate whether the next response will produce reinforcement (p. 636).

Example:

- Intermittent schedules of reinforcement
- Delayed rewards – no clear stimuli in the environment
- Intermittent Grading – randomly selected 25% papers to grade – bonus point to class contingent on graded papers

(Stokes & Baer, 1977; Cooper et al., 2007)

Program Common Stimuli

Including typical features of the generalization setting into the instructional setting (p. 632).

- Identify & incorporate "mock" social setting i.e. audition, race, apartment
- Observe or use critical people (socially validate)
- Use natural environment assessments or contingencies

(Stokes & Baer, 1977; Williams & Cuvo, 1986; Cooper et al., 2007)

Mediate Generalization

Examples include:

- Following multiple step directions

- Self-management skills

(Stokes & Baer, 1977)

Train to Generalize

Treat "to generalize" as a behavior itself. Placing some sort of contingency on "generalize" itself.

Example:
- Problem solve a social problem
- Block design (Stokes & Baer, p. 362)
- Multiple ways to solve a math problem

(Stokes & Baer, 1977)

Technology of Generalization

Train To Generalize

Sequential Modification

Program Common Stimuli

Train Loosely

Behavior Traps

Naturally Maintaining Contingencies

Train Sufficient Exemplars

Mediate Generalization

Use Indiscriminable Contingencies

(Stokes & Baer, 1977)
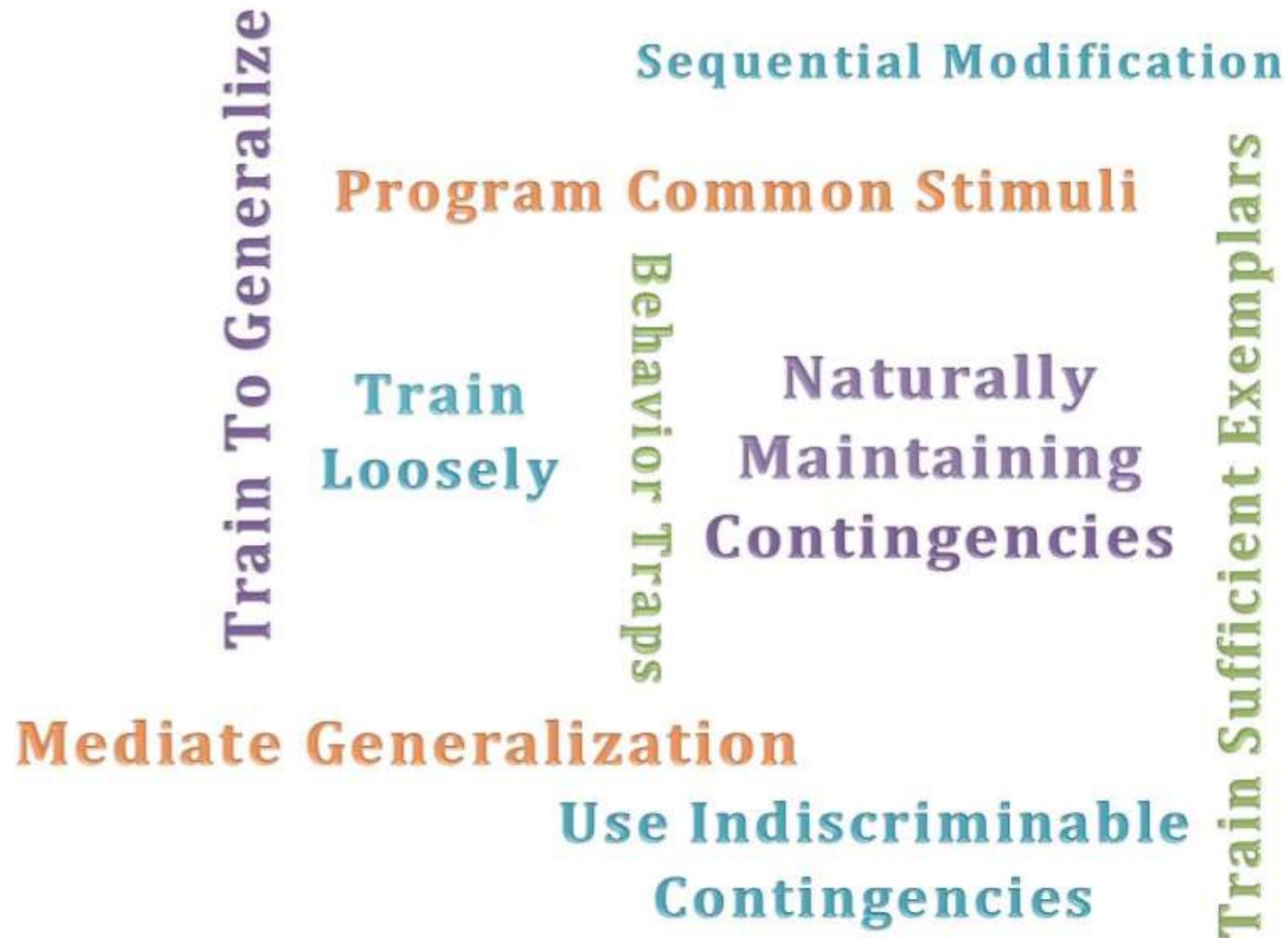
Atomic Repertoires and Autism

- Common Issues:
  - Failure to use skills taught in novel ways or under novel circumstances

  - Failure to transfer responses to novel exemplars
  - Responding to a very limited number of cues in the environment

Technical Analysis: Atomic Repertoires

"Elementary units of behavior"

"...a set of fine-grained units of behavior, each under control of a distinctive stimulus, that can be evoked in any permutation by the arrangement of corresponding stimuli" (p. 61)

(Palmer, 2012)

Technical Analysis: Complex Behavior

- Complex behaviors:

    – Are rarely shaped bit by bit

    – Arise from other behaviors that have been shaped

(Palmer, 2012)

Examples of Atomic Repertoires

Imitation

Echoic

Transcriptive Behavior

Tact

Textual Behavior

(Palmer, 2012)

Importance of Atomic Repertoires

- Valuable and efficient
  - Atomic repertoires can be brought together to teach complex skills
  - Result in more generalized and generative responding
  - Maintained by natural contingencies

(Palmer, 2012)

Adaptive Behavior

- **Personal independence**
  - Age
  - Cultural expectations
  - Social group
  - Environment

Independent Living · Personal Care · School Skills · Job Skills · Leisure · Adaptive Behavior
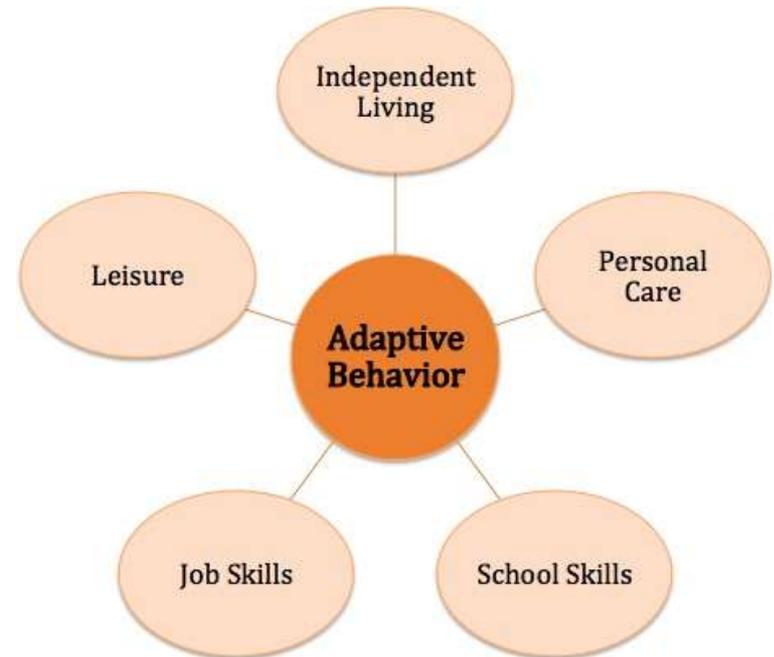
"... Quite simply, everything we do that is not purely academic in nature" (Gerhardt, Zawacki, & Satriale, p. 159)

(Heward, 2005)

Complex Behavior: Independent Living
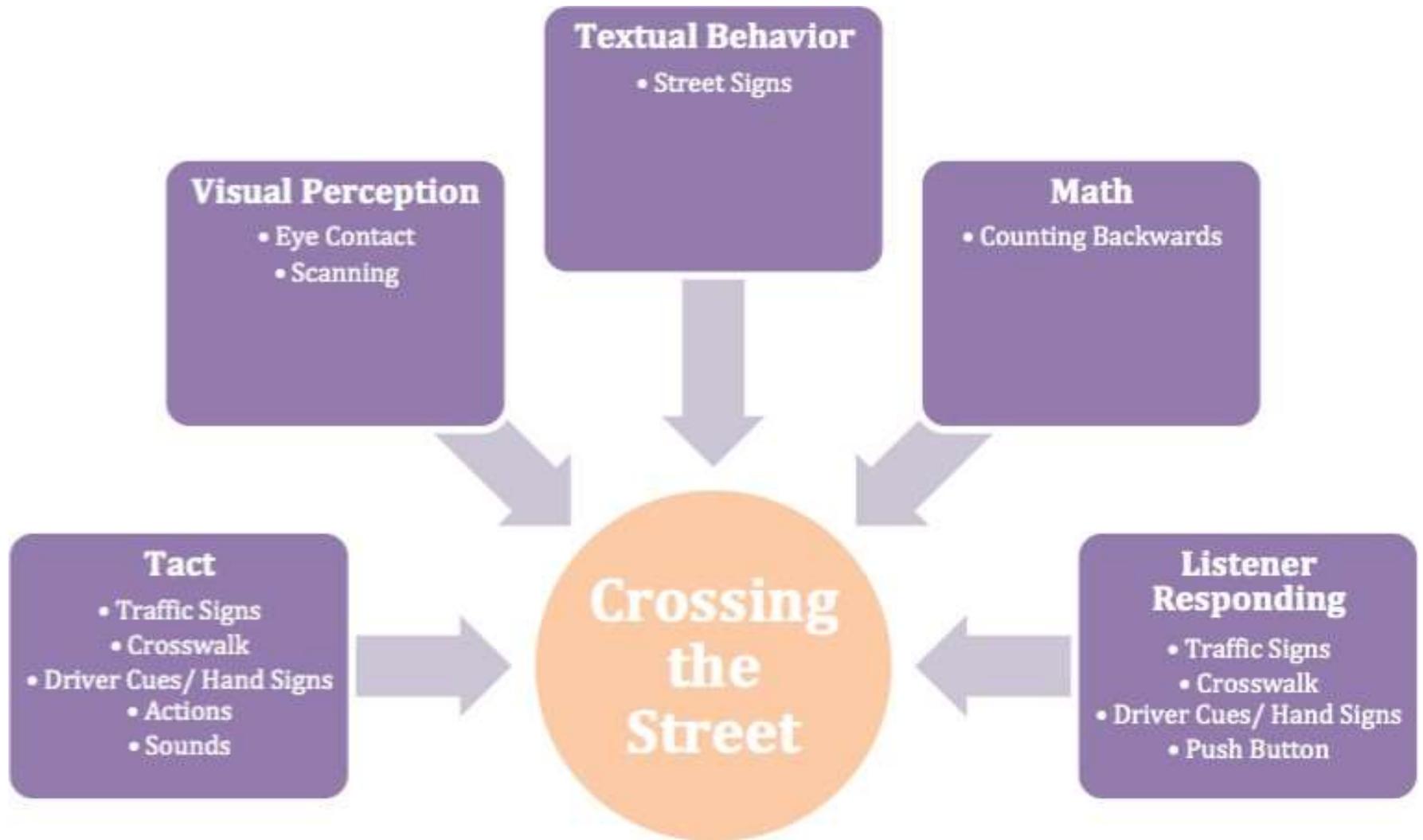
Complex Behavior: Personal Care

Imitation
- Novel Repertoire

Mand
- Items
- Missing Items

Visual Perception
- Matching (Style)

Tact
- Items (Style, Materials)
- Actions
- Adjectives

Styling Hair

Listener Responding
- Items (Style, Materials)
- Actions

Complex Behavior: Schools Skills
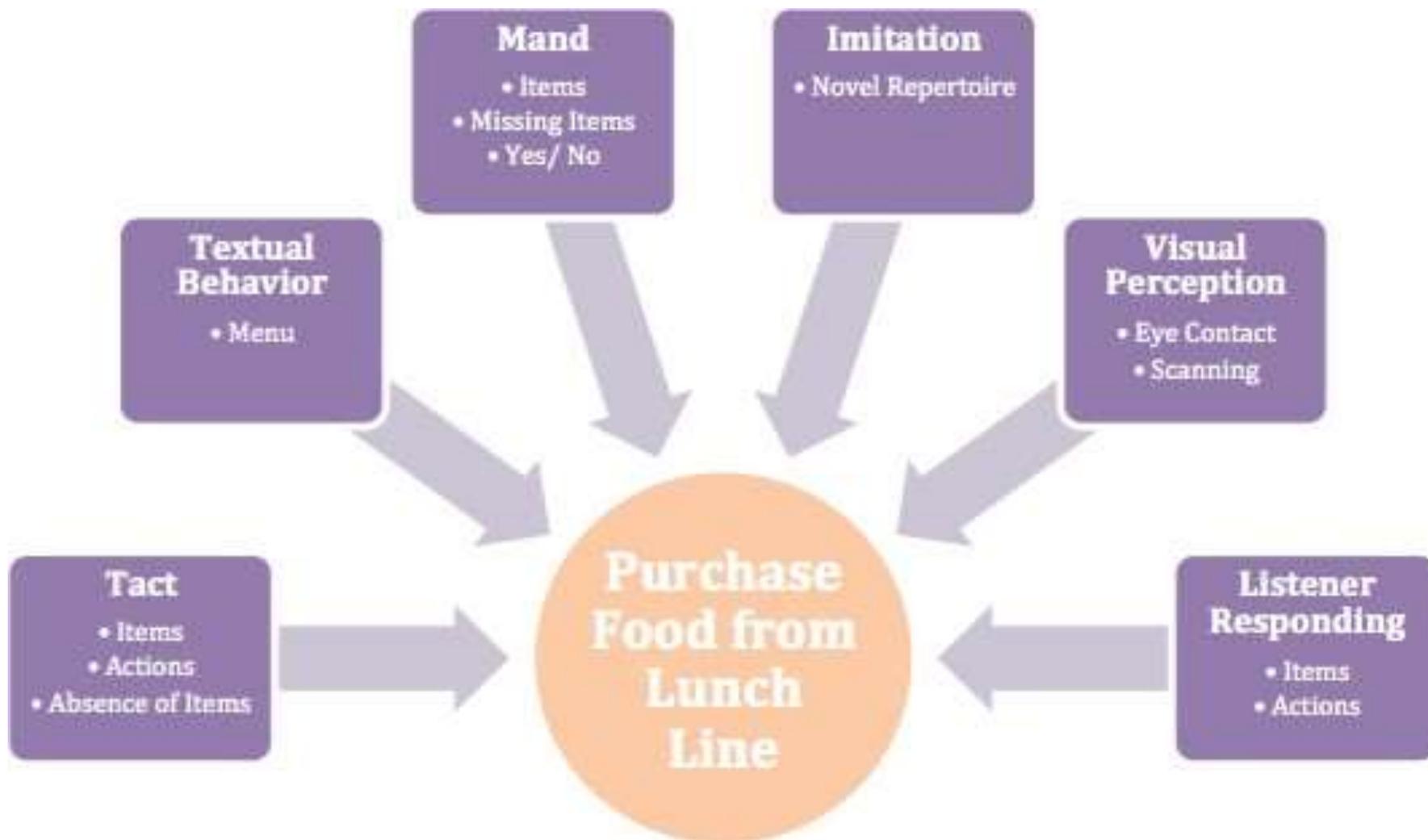
Complex Behavior: Job Skills

Complex Behavior: Leisure Skills

Textual Behavior
- Letters & Their Sounds

Visual Perception
- Scanning

Tact
- Items
- Actions
- Prepositions
- Pronouns
- Adjectives

Share Comments or Answer Questions about a Movie/ Book

Intraverbal
- Rotating Questions
- Delayed Responding
- Webbing
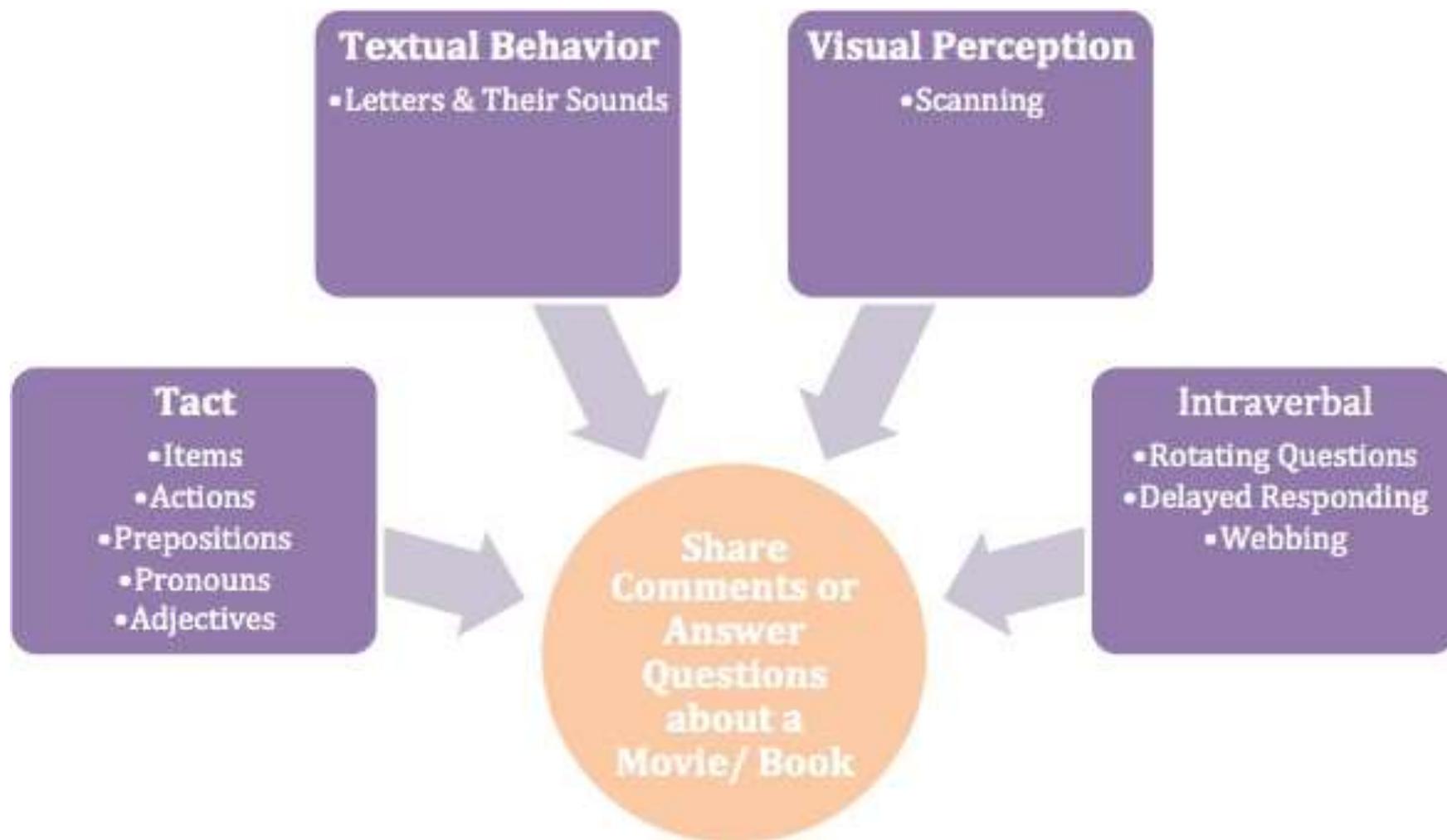
Parent Interviews: Quality of Life

- What skills are relevant to promote the quality of a meaningful life, including those that are most important for your child's future?

Parent Interviews: Summary

Elementary Student, age 8

- Meaningful Life
  - Flexibility/transitions
  - Vocabulary
  - Toileting/community outings
- Anticipated Changes
  - Flexibility/job skills
  - Have a real friend
- Post Graduation
  - Follow directions
  - Read
  - Independence
- Parent Training
  - Person to person
  - Specific topics
  - Video skills

Sophomore Student, age 16

- Meaningful Life
  - Independent life skills
  - Communication/social skills
  - Cooking/safety skills
- Anticipated Changes
  - Greater independence
  - Community member
  - Socialize
- Post Graduation
  - Initiate communication
  - Have job/follow job rules
- Parent Training
  - Face to face
  - Collaborative brainstorming

An Integrated System of Instruction

Slide Used with Permission (Dipuglia, 2016)

An Integrated System of Instruction

Assessment

Program/Target Selection

Teaching Procedures

Organization

Data Systems

Staff Training/Treatment Fidelity
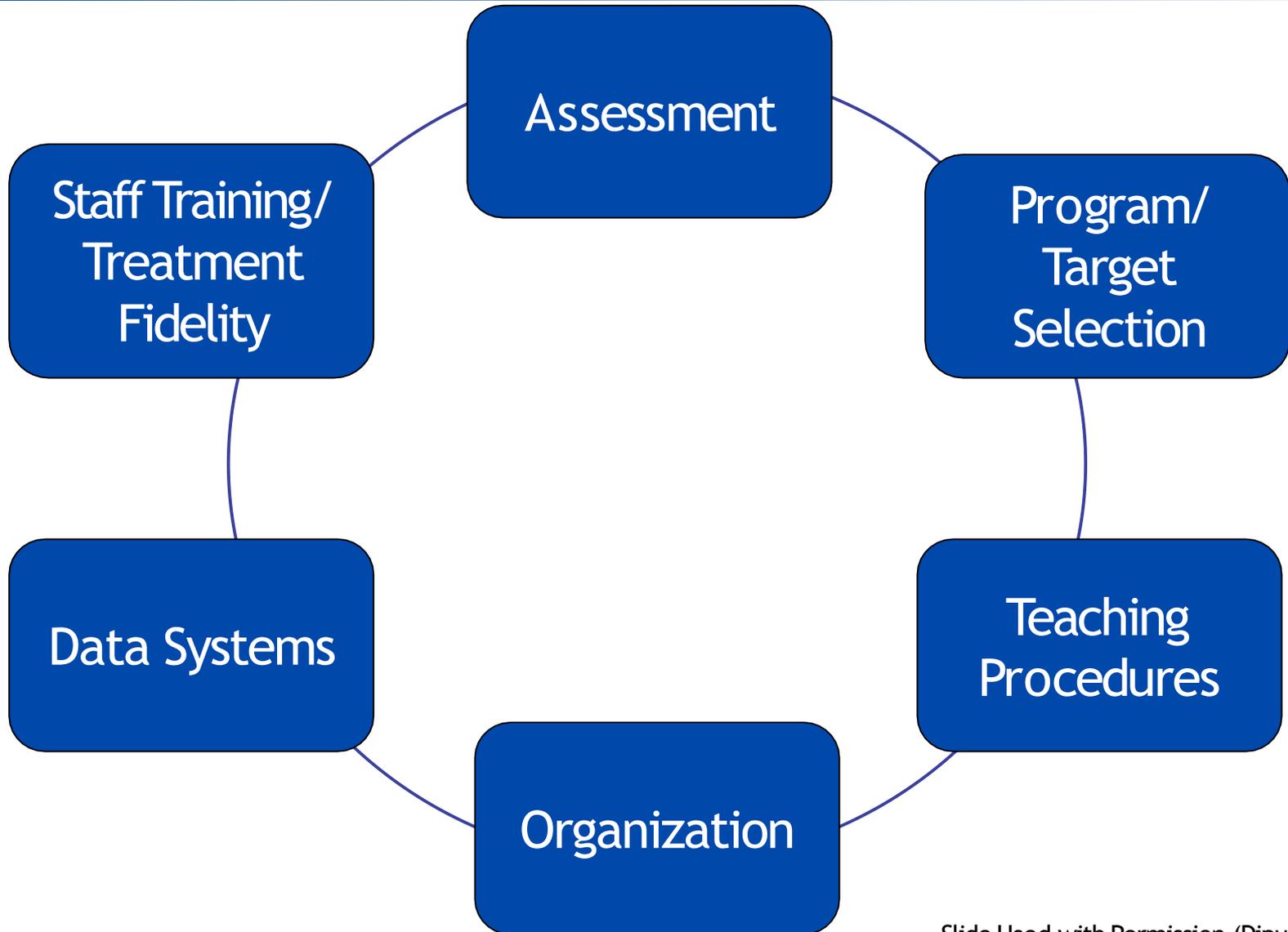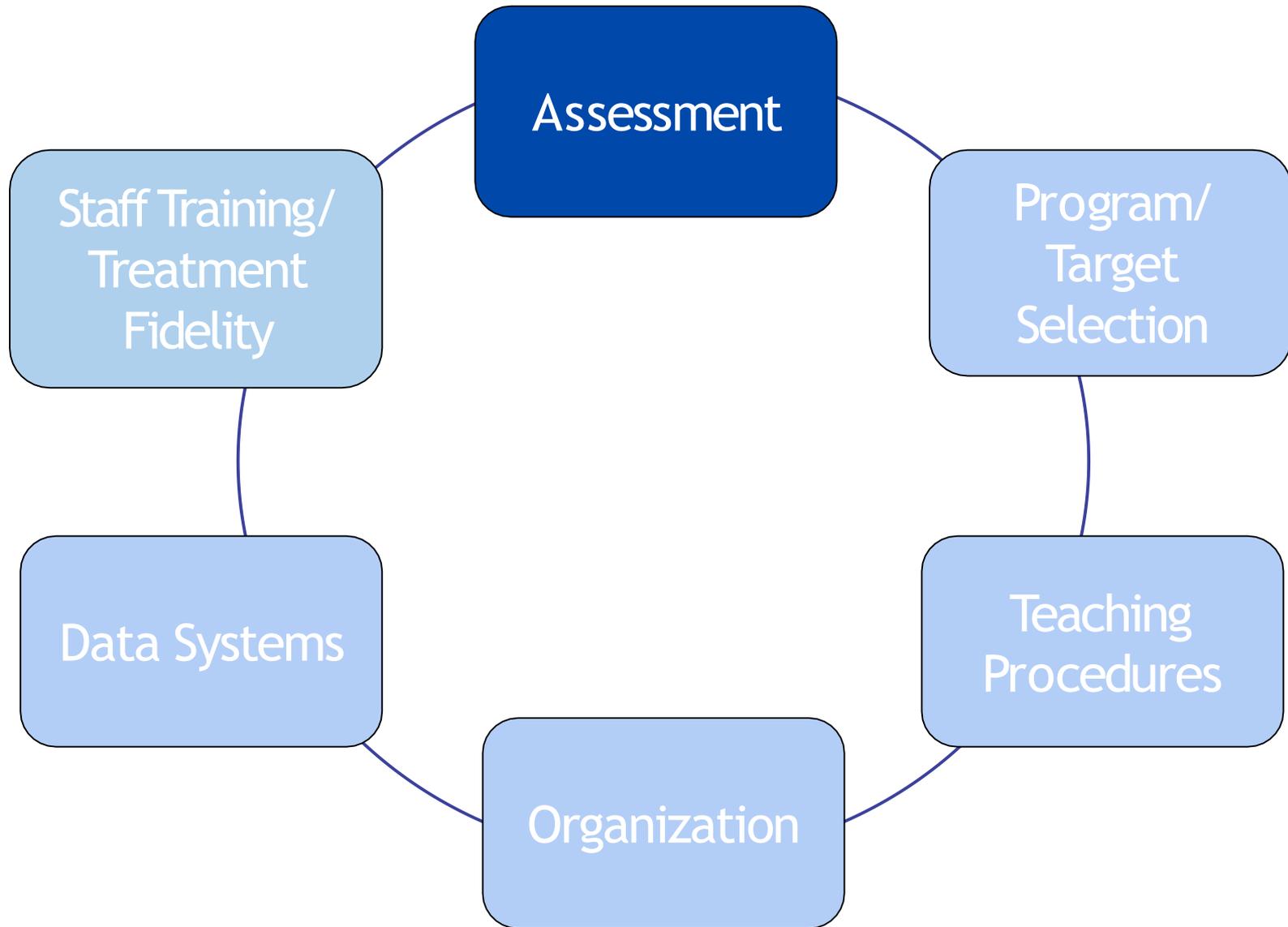
Methods of Assessment

Indirect

- Interview
- Checklist
- Survey
- Rating scale

Direct

- Tests
- Direct observation
- Standardized exams
- Portfolio

(Cooper et al., 2007)

Assessment Examples
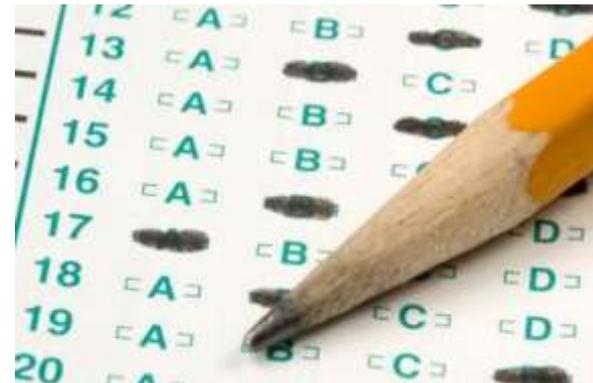
Considerations for Assessment

- Assessments should:
  - Be efficient
  - Yield the necessary information to determine what skills need to be taught

(Teach For America, 2011)

Considerations for Assessment

- Criteria are intended for assessment purposes and do not imply mastery of the skill sets

- Check for generalization of skills

- Check for prerequisite skills needed to teach complex behaviors

(Killion, 2003; Partington & Mueller, 2012)

Assessment Criteria Example

Listener Response 11:
Performs 5 activities of dressing or personal hygiene when directed to do so

Should-have Listener Responses

Following Directions to Complete Routine Activities

NA	LR12. Completes five activities of dressing or personal hygiene when directed to do so												
1		IA	IM	-SA	-DC	-RP	FP	PP	MP	Ind	2S	2P	Det
2		IA	IM	-SA	-DC	-RP	FP	PP	MP	Ind	2S	2P	Det
3		IA	IM	-SA	-DC	-RP	FP	PP	MP	Ind	2S	2P	Det
4		IA	IM	-SA	-DC	-RP	FP	PP	MP	Ind	2S	2P	Det
5		IA	IM	-SA	-DC	-RP	FP	PP	MP	Ind	2S	2P	Det

(McGreevy, Fry, & Cornwall, 2014)

Assessment Criteria Example

Tact Milestone 8:
Tacts (Labels) 10 actions when asked, for example,
"What am I doing?"

(Sundberg, 2008)

Assessment Criteria Example

Listener Response 16:
Performs 5 household chores or chores at work when directed to do so

NA	LR16. Performs five household chores or chores at work when directed to do so												
1		IA	IM	-SA	-DC	-RP	FP	PP	MP	Ind	2S	2P	Det
2		IA	IM	-SA	-DC	-RP	FP	PP	MP	Ind	2S	2P	Det
3		IA	IM	-SA	-DC	-RP	FP	PP	MP	Ind	2S	2P	Det
4		IA	IM	-SA	-DC	-RP	FP	PP	MP	Ind	2S	2P	Det
5		IA	IM	-SA	-DC	-RP	FP	PP	MP	Ind	2S	2P	Det

(McGreevy et al., 2014)

Generalization of Skills Example

TEACHER/STAFF CHECKLIST

Student _____   Class/age _____

Teacher/staff _____   Date _____

INSTRUCTIONS: Listed below are a number of skills that children are more or less proficient in using. This checklist will help you evaluate how well each child uses the various skills. For each child, rate his/her use of each skill, based on your observations of his/her behavior in various situations.

Circle 1 if the child is *almost never* good at using the skill.
Circle 2 if the child is *seldom* good at using the skill.
Circle 3 if the child is *sometimes* good at using the skill.
Circle 4 if the child is *often* good at using the skill.
Circle 5 if the child is *almost always* good at using the skill.

Please rate the child on all skills listed. If you know of a situation in which the child has particular difficulty using the skill well, please note it briefly in the space marked "Problem situation."

almost never seldom sometimes often almost always

1. **Listening:** Does the student appear to listen when someone is speaking and make an effort to understand what is said?   1   2   3   4   5

Problem situation:

PARENT CHECKLIST

1. **Listening:** Does your child listen when you or others talk to him/her?   1   2   3   4   5

Comments:

STUDENT CHECKLIST

1. Is it easy for me to listen to someone who is talking to me?   1   2   3   4   5

Skill #1 Listening: Teacher, parent, & student rate use of skill across various situations

(McGinnis, 2012)

Generalization of Skills Example

Imitation Milestone 10:
Imitates any novel motor action modeled by an adult with and without objects

LEVEL 2

Mand	Tact	Listener	VP/MTS	Play		Imitation	Echoic	LRFFC	IV	Group	Ling.

(Sundberg, 2008)

Generalization of Skills Example

Mand Milestone 3:
Generalizes 6 mands across 2 people, 2 settings, and 2 different examples of a reinforcer

(Sundberg, 2008)

Generalization of Skills Example

Demonstrates Transfer Between the Verbal Operants Without Training:

Example: Tact → Mand

VB-MAPP Transition Scoring Form

(Sundberg, 2008)

Pre-Requisite Skills Example

Adaptive Behavior Skills 64:
Regulate water temperature

ADT 67
ADT 68
ADT 71
ADT 72
ADT 73
ADT 94
ADT 125
VOC 44
VOC 48
VOC 63
VOC 72
VOC 73

ADT 64*
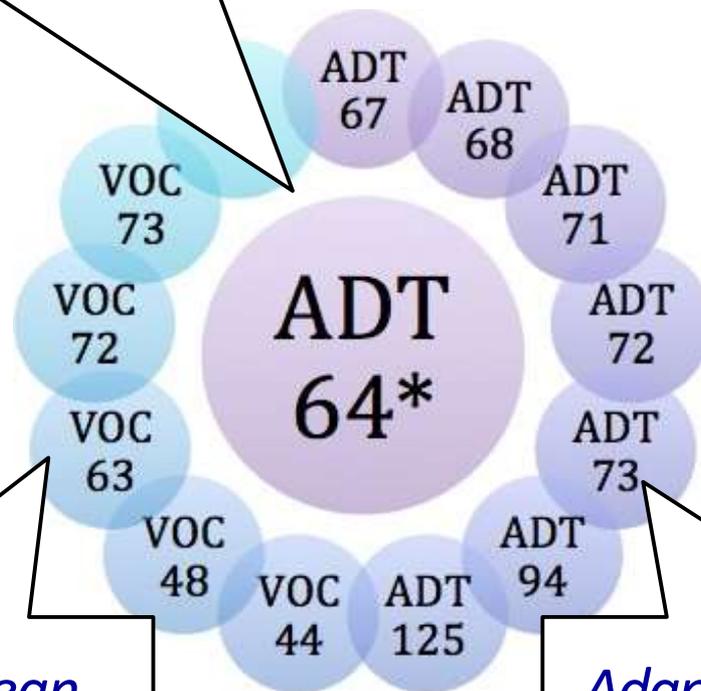
Vocational Skills 63: Clean food preparation items

Adaptive Behavior Skills 73: Wash and rinse own hair

Pre-Requisite Skills Example

Impaired Scanning Skills: Match-to-sample, listener discriminations, and listener responding by feature, function, class require scanning skills

VB-MAPP Barriers Scoring Form

(Sundberg, 2008)

Pre-Requisite Skills Example

(Partington & Mueller, 2012)

Assessment of Functional Living Skills
Skills Tracking System

Community Participation Skills

Shopping 40:
Locates or identifies store departments or service locations

MB Basic Mobility

CK Community Knowledge

SH Shopping

EP Eat in Public

MO Money

PH Phone

TS Time

SA Social Awareness & Manners

Pre-Requisite Skills Example

Assessment of Functional Living Skills
Skills Tracking System

School Skills

Applied Academics 4:
Reads and follows simple instructions to do actions

| CM | Classroom Mechanics | MS | Meals at School | RE | Routines & Expectations | SS | Social Skills | TN | Technology | KC | Common Knowledge | CA | Core Academics | AA | Applied Academics |

Assessment

VB-MAPP
Master Scoring Form

Child's name:	KS			
Date of birth:	11-3-2000			
Age at testing:	1	2	3	4

Key:	Score	Date	Color	Tester
1st test:	41.5	9/1/16		Sk
2nd test:	78	2/17/17		SK
3rd test:	92.5	2/20/18		SK
4th test:				

LEVEL 3

Mand	Tact	Listener	VP/MTS	Play	Social	Reading	Writing	LRFFC	IV	Group	Ling.	Math

LEVEL 2

Mand	Tact	Listener	VP/MTS	Play	Social	Imitation	Echoic	LRFFC	IV	Group	Ling.

LEVEL 1

Mand	Tact	Listener	VP/MTS	Play	Social	Imitation	Echoic	Vocal
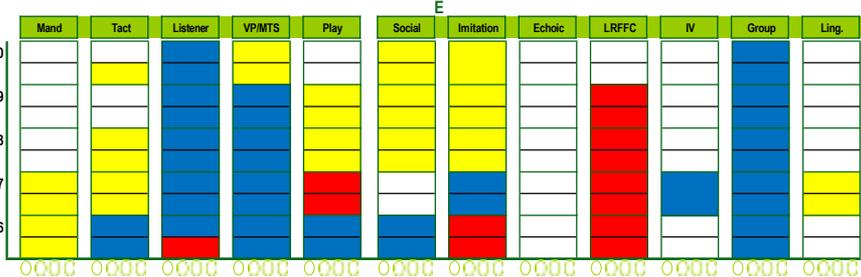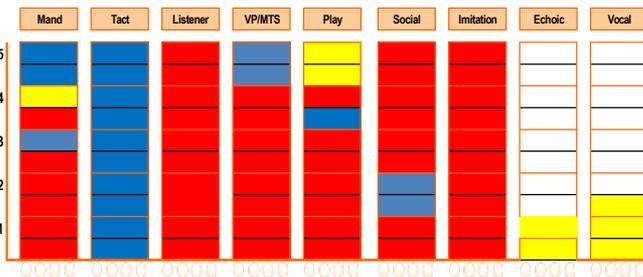
- Generalized imitation repertoire
- Labels items with sign
- Selects items from field with similar stimuli
- Follows multi step directions

An Integrated System of Instruction
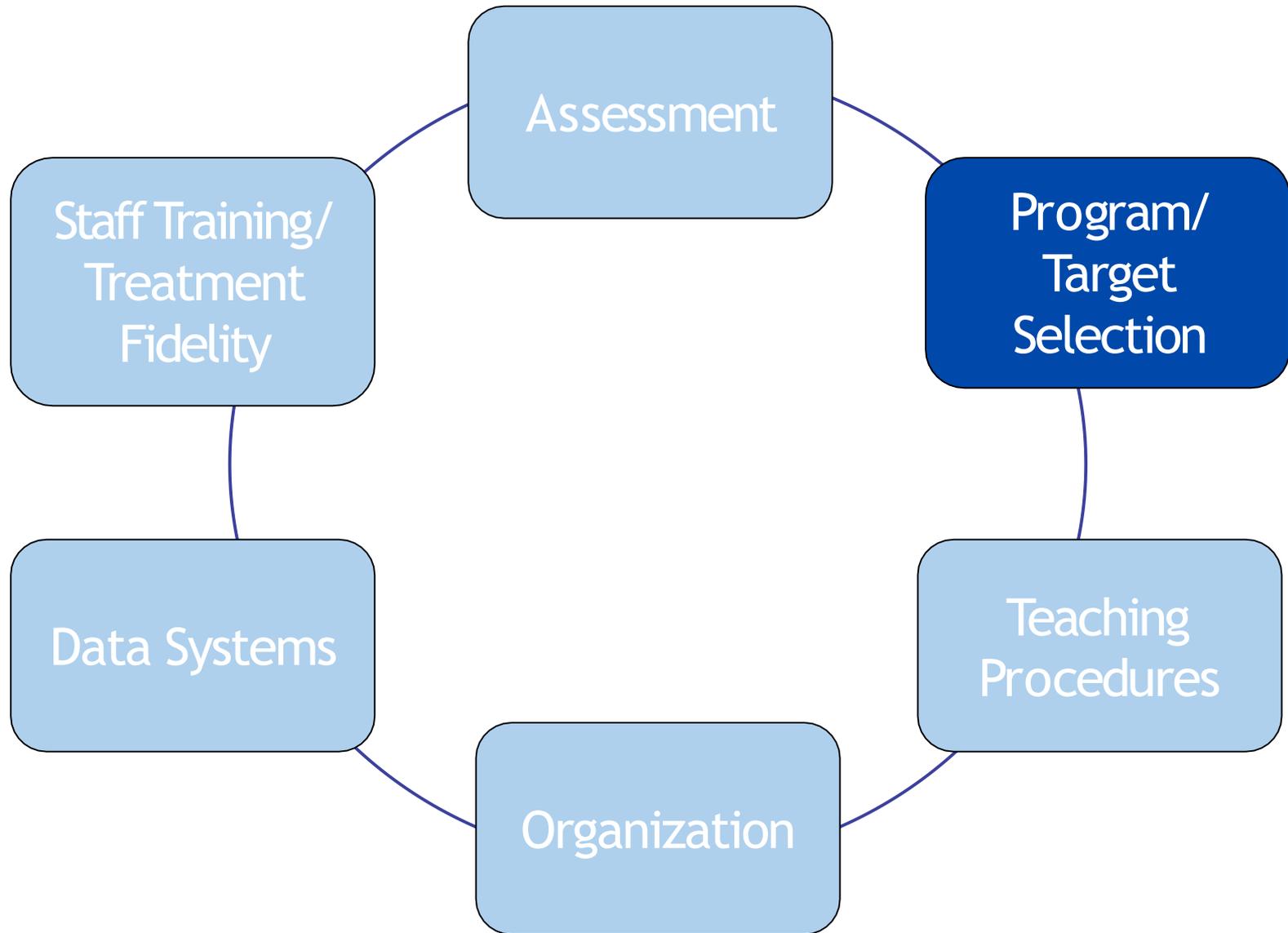
Programming

- Teach basic repertoires
- Unite atomic repertoires to teach complex skills
- Sequence of instruction
  - Unite intermediate steps with the end goal

Easy   Hard
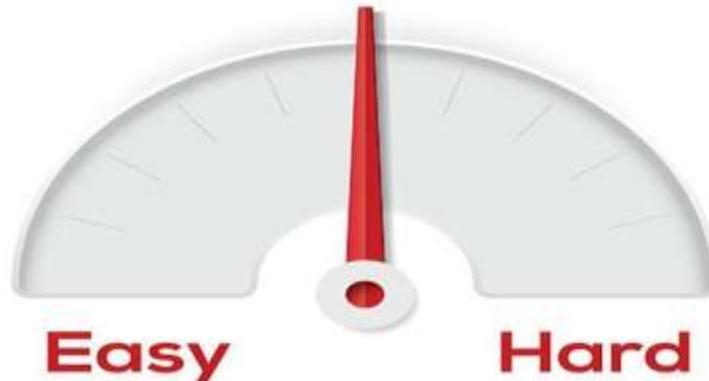
(Lagomarcino, Reid, Ivancic, & Faw, 1984; Dipuglia, 2016)

Teaching Concepts

- Teach concepts
  - Multiple exemplars (full range)
  - Teach critical features
  - Generalized to novel examples
- Teach recombination and novel responding
- Teach students to respond to all relevant stimuli
- Directly teach complex skills
  - E.G. Joint control
    - Sesame Street (2008, September 05). I can remember. Retrieved from https://www.youtube.com/ watch?v=MNghp9tPXjo&feature=player_embedded#!

Target Selection

- Select targets/ programs that are:
  - Socially significant
  - Relevant
  - Valuable to the student
  - Common in day-to-day life
  - Tied to the general education curriculum
  - Promote and facilitate social initiations/ interactions
  - Promote independence
  - Prerequisite skills

http://www.pattan.net/category/Educational%20Initiatives/Autism/blog/What_should_I_teach_An_Introduction_to_Target_Selection.html

(Dunn-Naccarelli, 2016)

IEP Goals and Objectives

- Align goals with the ultimate target behavior

  – Does the behavior change have generality?

- Examples:

  – Across at least X novel exemplars

  – Across at least X novel situations

  – Across at least X instructors and environments

(Baer et al., 1968; BACB, 2017)

Target Selection

Filling Orders at Dunkin Donuts

- Tact with Sign
- LR Selection with Joint Control
- CRA Math

Teacher Interview

An Integrated System of Instruction

Technology of Generalization

Sequential Modification

Program Common Stimuli

Train To Generalize

Behavior Traps

Train Loosely

Naturally Maintaining Contingencies

Train Sufficient Exemplars

Mediate Generalization

Use Indiscriminable Contingencies

(Stokes & Baer, 1977)
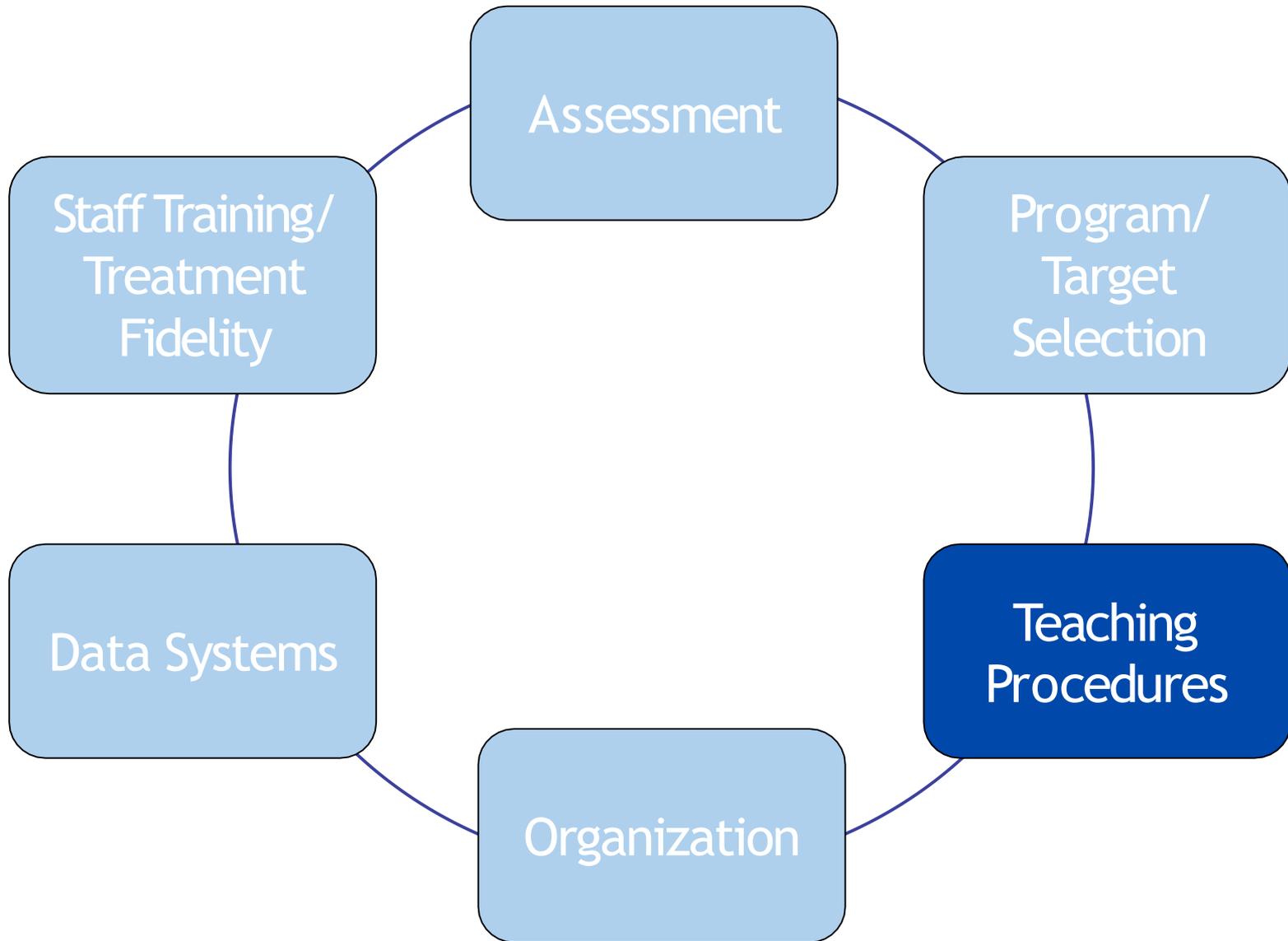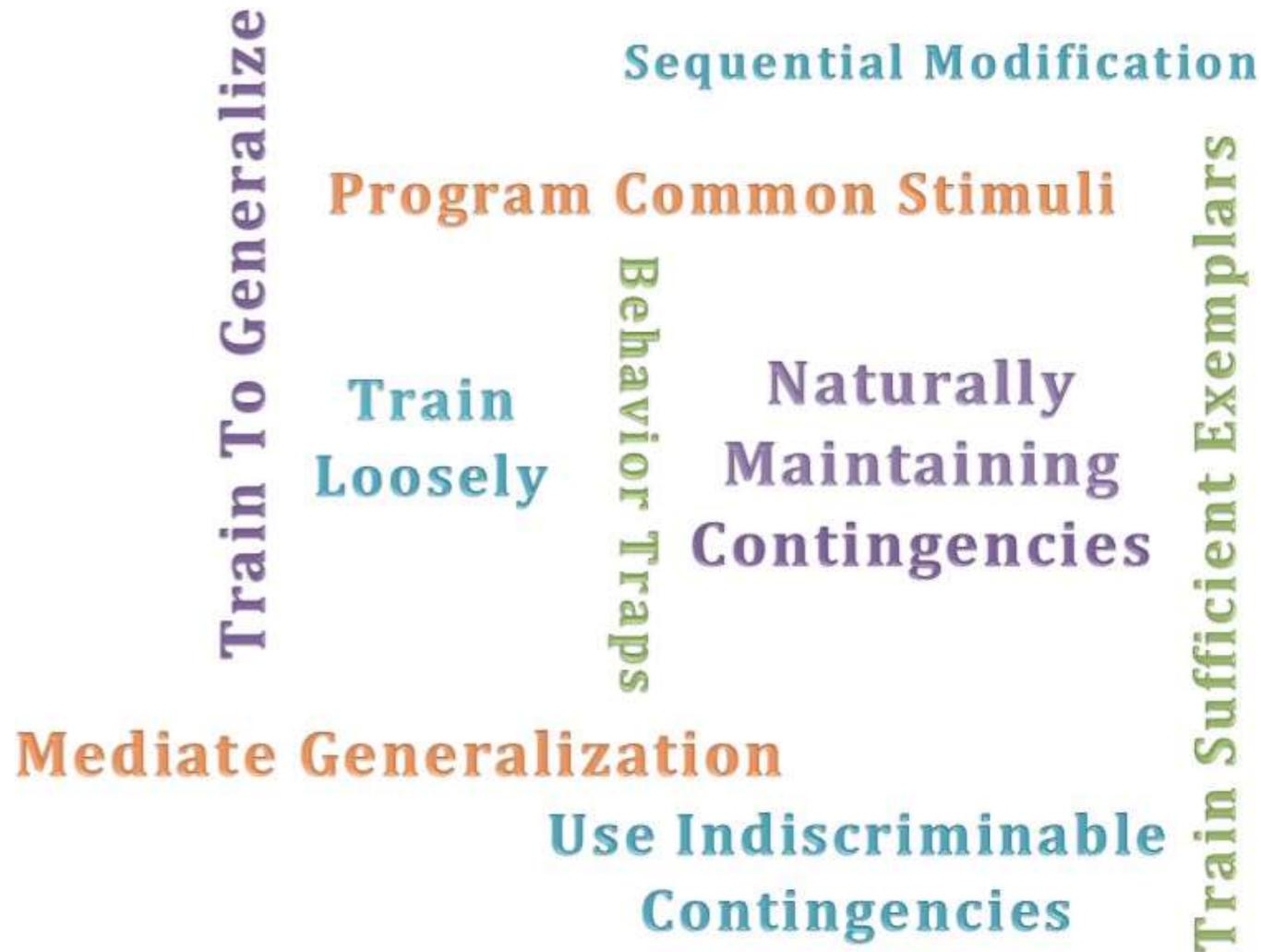
LR Selection with Joint Control

Teaching Procedures:

1. Teach Tacts i.e. "sprinkles, cinnabons"

2. Probe LR Selection with new items i.e. "give me sprinkles, chocolate, and cinnabons."

3. If student is able to do all of the LR Selection above, consider working on the skill of selecting multiple within item (without giving numbers) i.e.: "give me sprinkles, sprinkles, chocolate, and chocolate."

4. Eventually, teach the concept of # + item "give me 2 sprinkles and 2 cinnabons."

Actual set of instructions for staff for this particular learner. May differ on learner.

(Lowenkron, 1991)

CRA Math

- Concrete |Representational |Abstract
  - Concrete: counting while manipulating items (tact items)
  - Representational: counting while drawing pictures (tact pictures)
  - Abstract: counting while working with symbols only (intraverbals)
- Thousands of basic tacts—across exemplars— builds the groundwork for math-like reasoning
- Subitize = tact quantity WITHOUT counting

(Campbell & Hozella, 2015)

CRA Math

Teaching Procedures:

<u>TARGET SKILLS 29-33: Tact Various Atypical Dice Pattern (on card)</u>

Show each card individually

STAFF: "How many?" (**Show for about 1-second and then cover/ remove**)

STUDENT: "(Tacts how many)"

<u>TARGET SKILLS 34-38: Tact Various Atypical Dice Pattern (with objects)</u>

Place objects in atypical pattern on desk

STAFF: "How many?" (**Show for about 1-second and then cover/ remove**)

STUDENT: "(Tacts how many)"

<u>TARGET SKILLS 39-43: Tact Dice Pattern (on card) in discrimination</u>

Show each card individually

STAFF: "How many black? (**Show for about 1-second and then cover/ remove**)

STUDENT: "(# of black dots on card)"

<u>TARGET SKILLS 44-48: Tact Dice Pattern (with objects) in discrimination</u>

Show objects in array

STAFF: "How many (1 colored counter)? (**Show for about 1-second and then cover/remove**)

STUDENT: "(# of colored counter)"

If a student begins to point and count each dot, cover the card up.

Student Skills

An Integrated System of Instruction
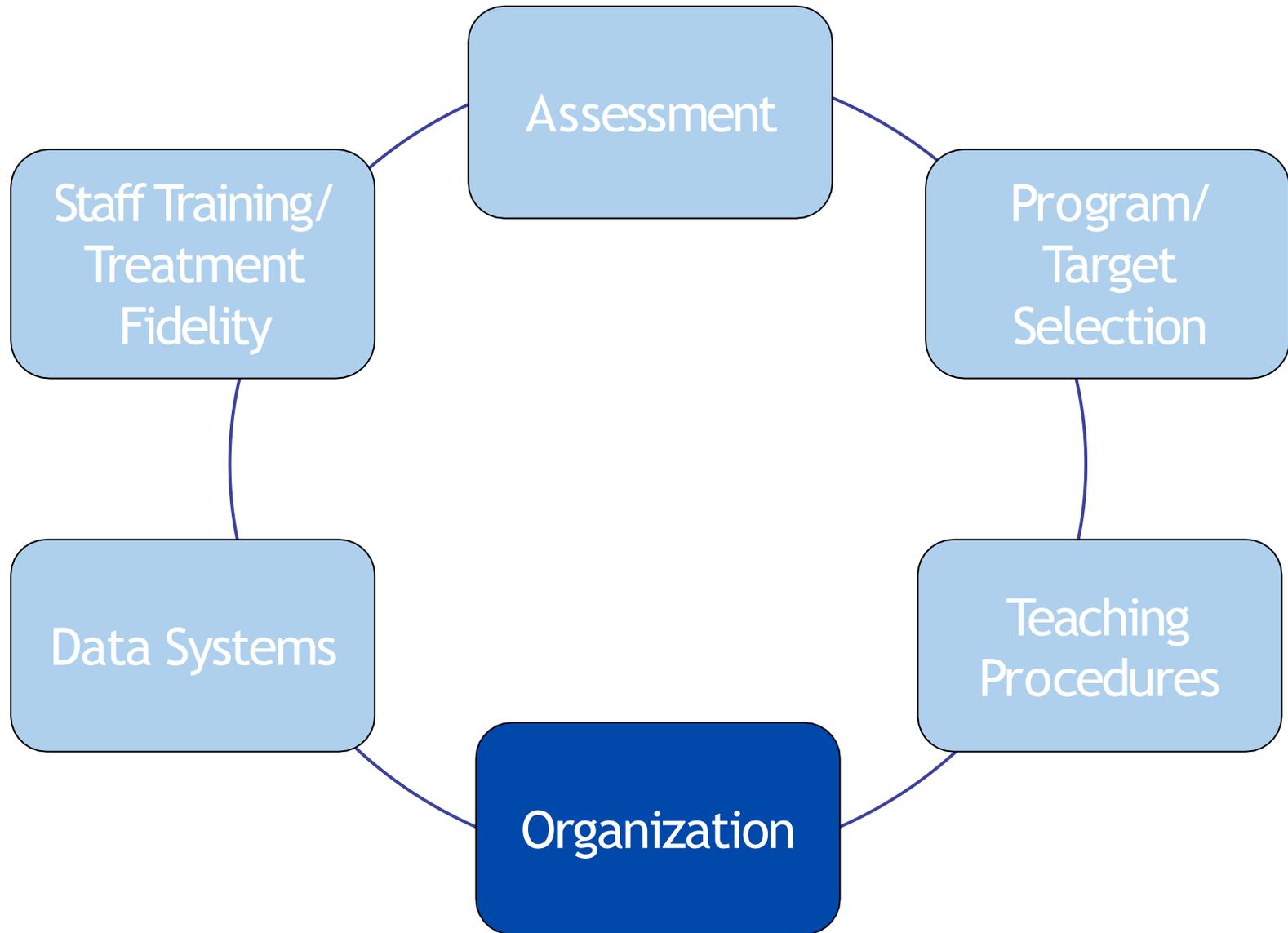
Organization

- ## Allocation of instruction
  - Schedule DTT and NET
  - Across people, locations, time presented
- ## Materials organization
  - Common stimuli
  - Multiple exemplars
    - Close in/ far out
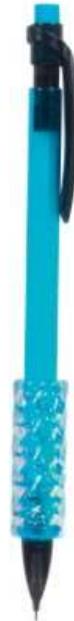
(Stokes & Baer, 1977)

Materials Organization
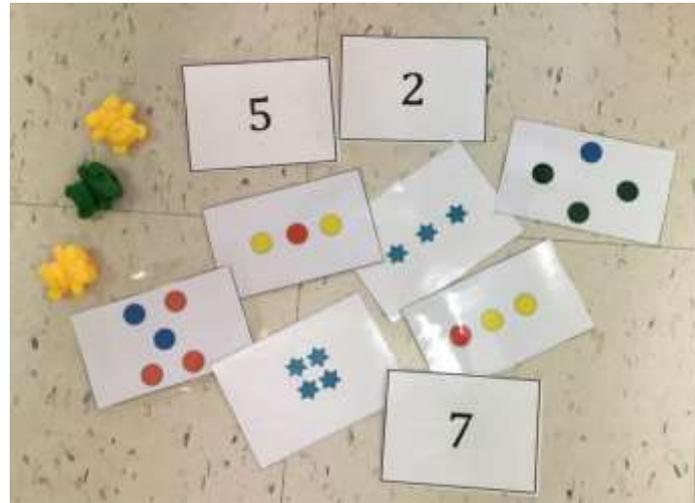
Sign Language Book
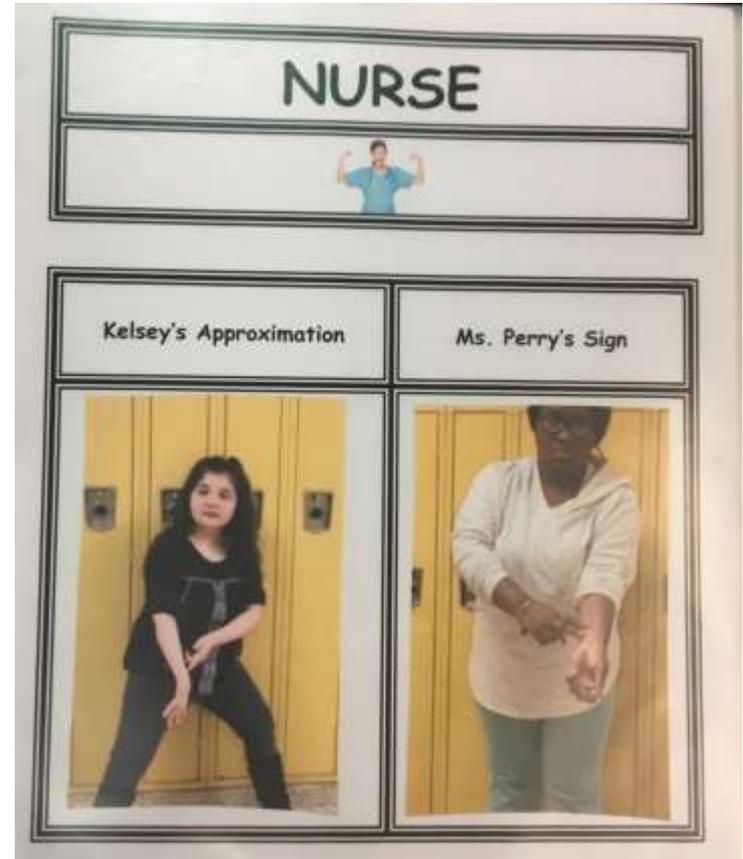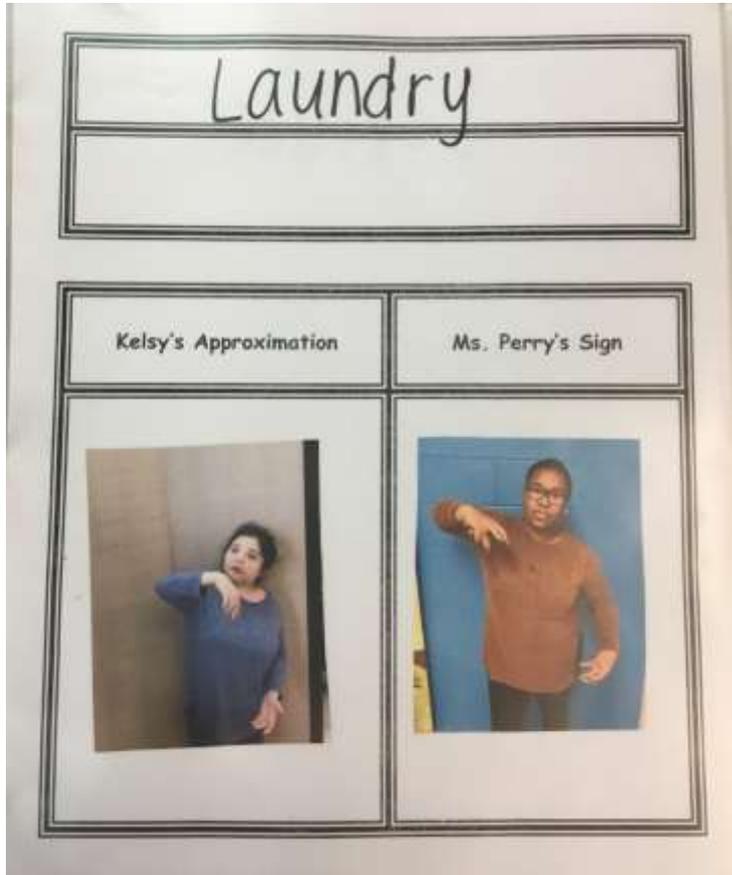
Student Skills

An Integrated System of Instruction
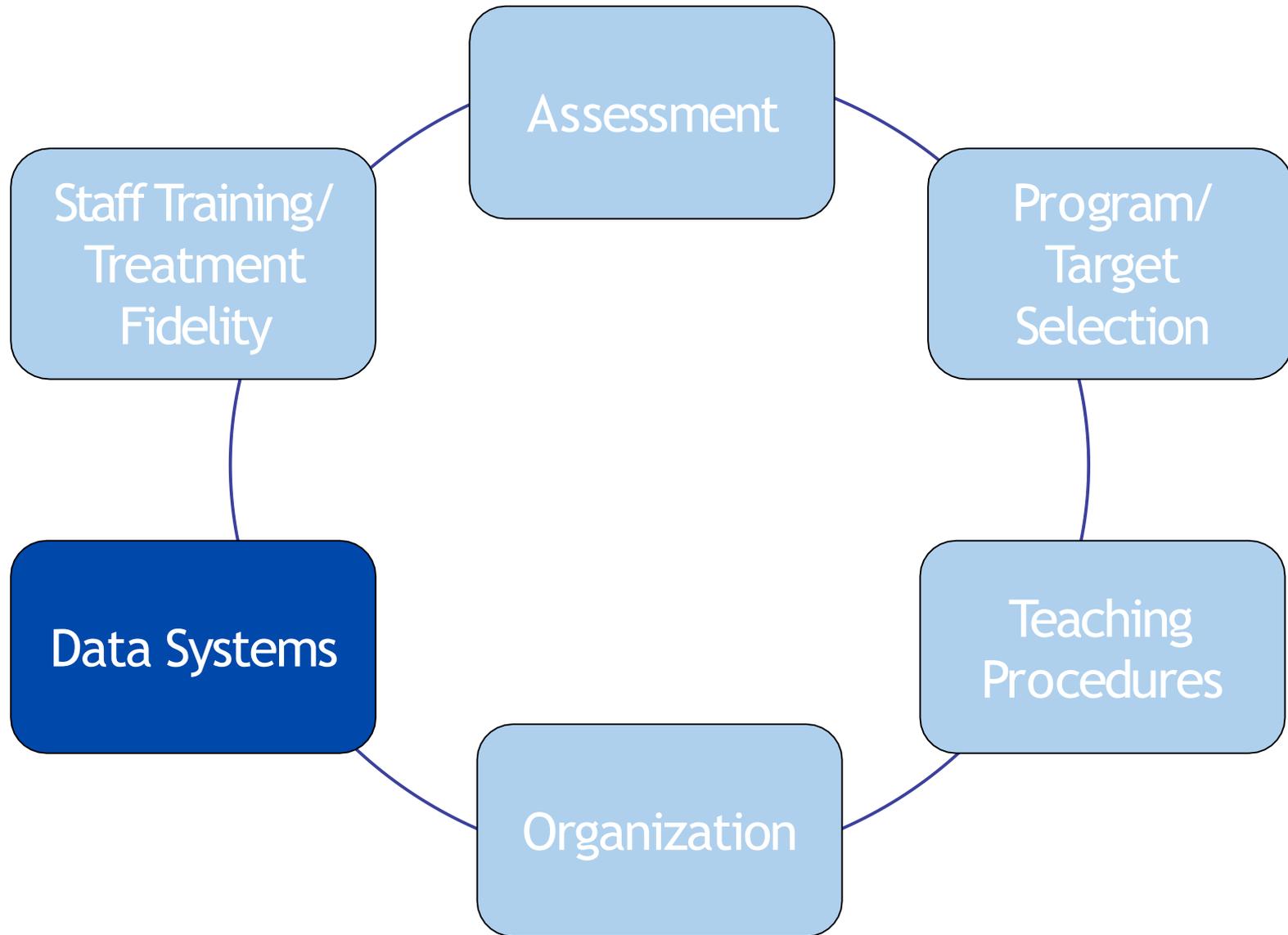
Data Systems

- Data systems should help check for generalization
  - Test examples different from those presented to teach the concept

Skills Tracking Sheet

Student Name: _____ Skill: _____ Mastery Criteria: _____

	Target	Date introduced	Date acquired	Generalization Data		
				Person	Location	Exemplar
1						
2						

(Engelmann & Carnine, 1982)
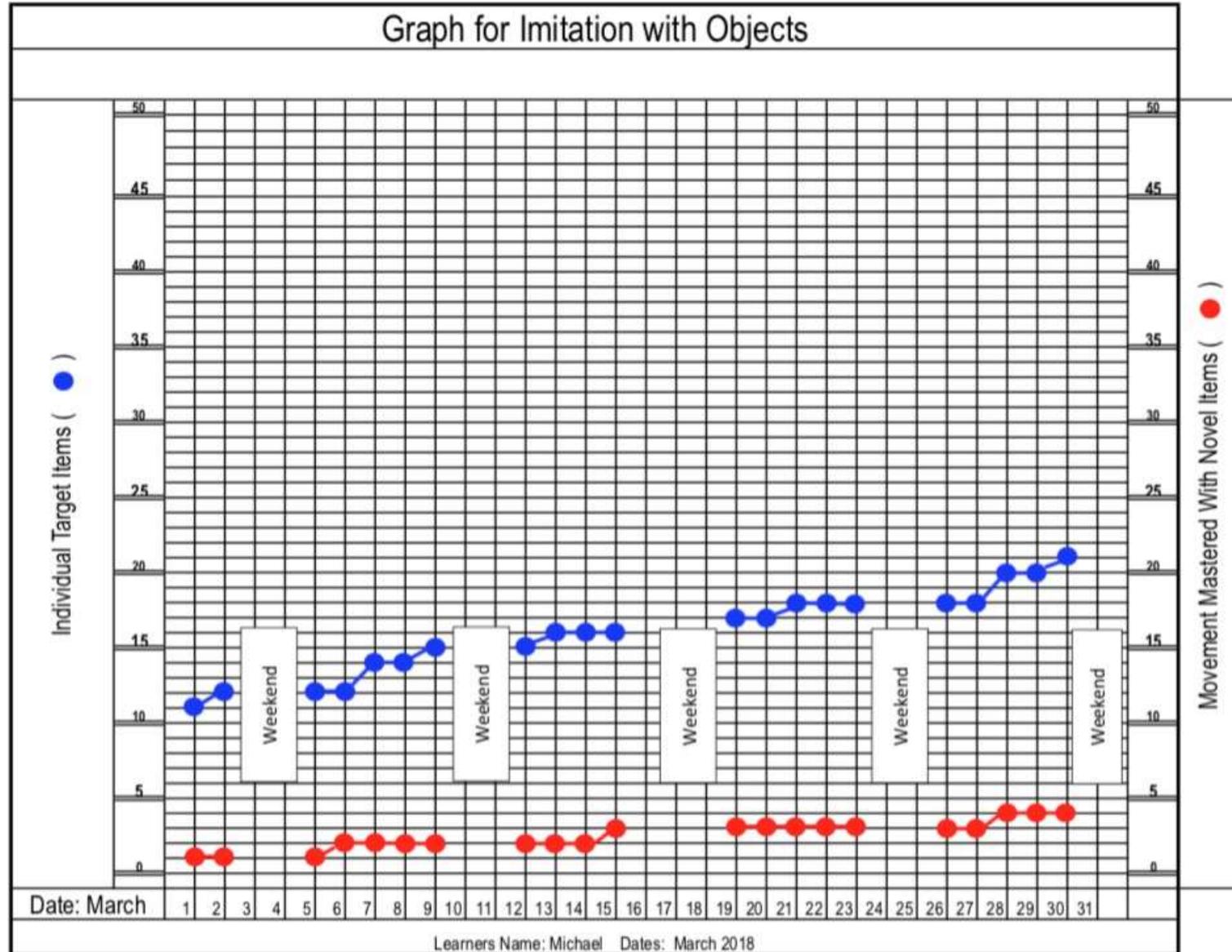
Data Systems

Data Systems: Tact with Sign

Data Systems: Joint Control

Data Systems: CRA Math

An Integrated System of Instruction

Behavioral Skills Training (BST)

Instructions	Provide a description & rationale
Modeling	Demonstrate how to perform the skill
Rehearsal	Allow trainee to practice
Feedback	Provide constructive feedback
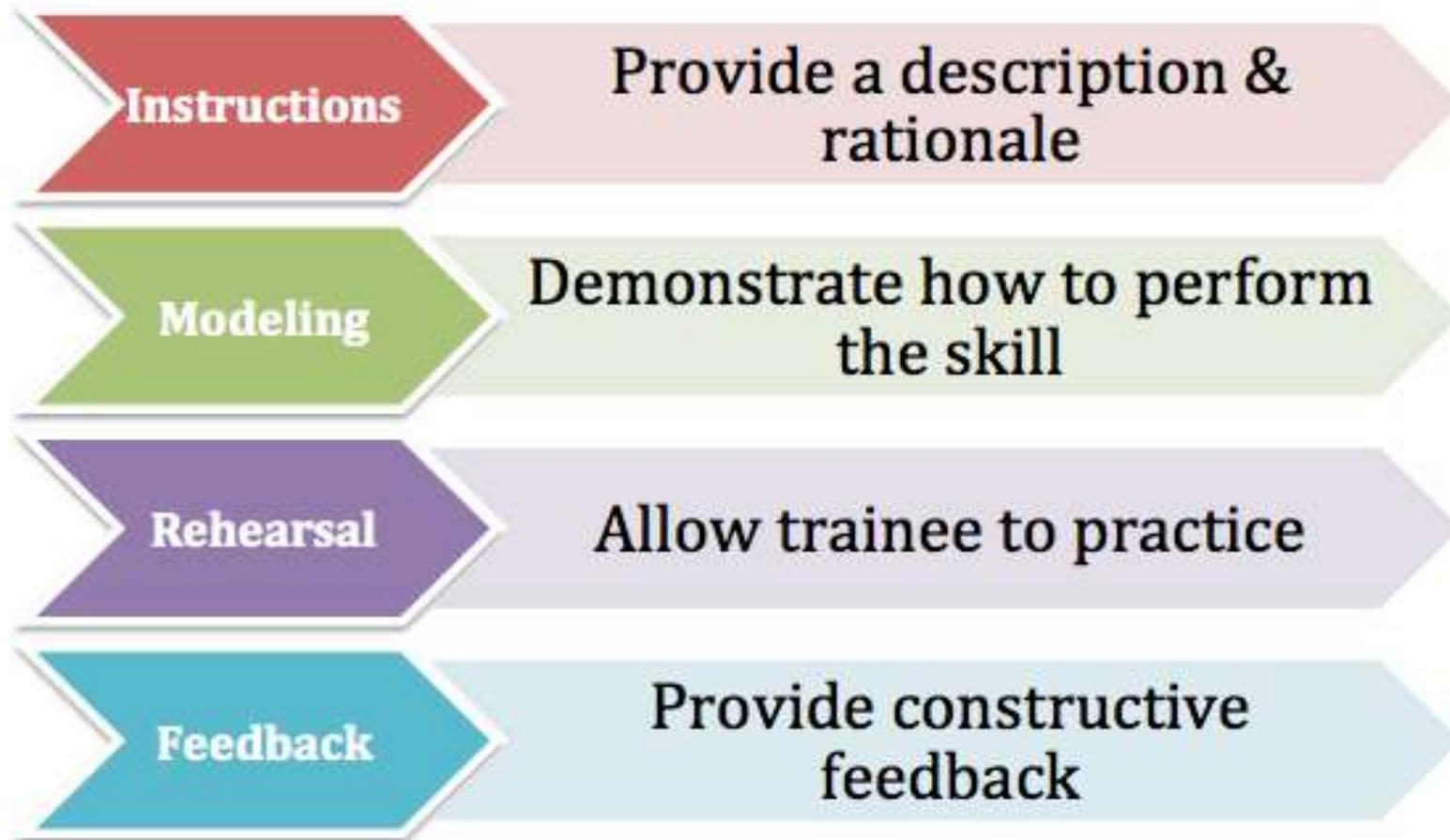
(Parsons, Rollyson, & Reid, 2012)

Staff Training & Treatment Fidelity

> **Many failures in consultation and interventions probably can be attributed to the fact that intervention plans are not implemented as intended**
>
> (Gresham, 1989, p. 137)
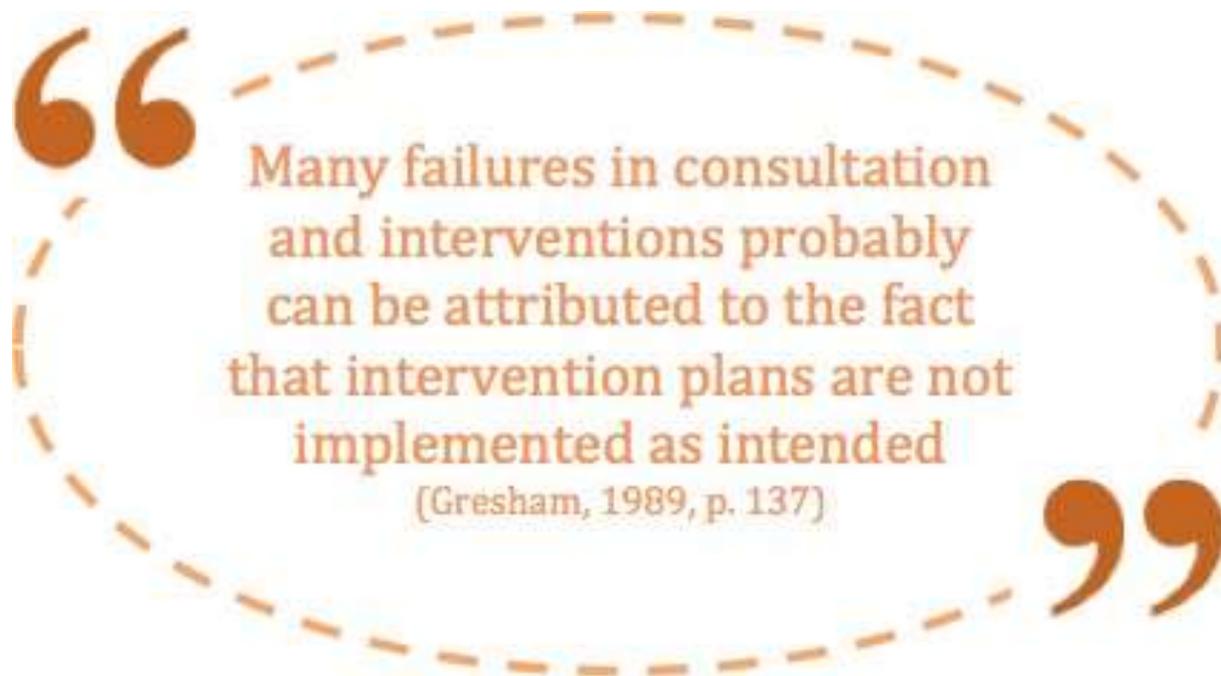
GENERALIZATION INTEGRITY CHECKLIST

Leader(s) _____

Group _____ Date(s) of review _____

INSTRUCTIONS: This self-rating checklist is designed to assist group leader(s) in enhancing generalization of student skill learning. While a numerical score is not computed, leader(s) may use this checklist to both plan instruction and evaluate the emphasis placed on generalization following instruction.

Skillstreaming

(McGinnis, 2012)

Parent Training: Lafasakis & Sturmey, 2007

- **Behavior Skills Training**
  - Train parents to use DTT
- **Increased student correct responding**
  - Purple= vocal imitation
  - Green= gross motor imitation
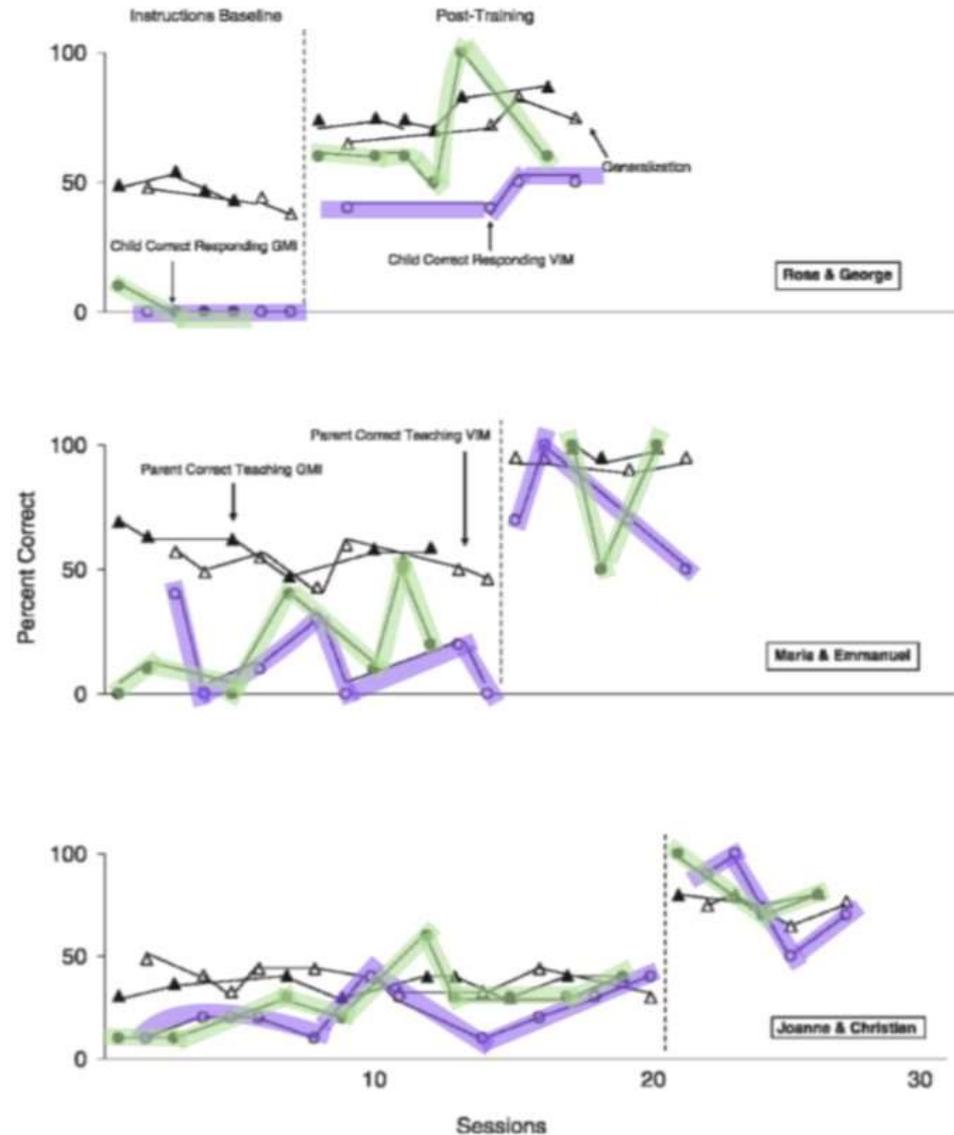
Figure 1. The percentage of correct implementation and generalization of discrete-trial teaching for parents and correct gross-motor and vocal imitative responses for children during instructions baseline and posttraining.

Parent Training & Communication

- Newsletters
- Communication logs
- Videos to send home
- Mini trainings in IEP meetings

(Cavalari, Gillis, Kruser, & Romanczyk, 2015)

Parent Training & Communication

Date: _____

Intensive Teaching	Brief Definition	Sample SD's	Current Targets
Tact	Student labels something they see, hear, smell, taste, or feel and gets non-specific reinforcement (such as praise or toy)	What is this? This is a _____ It's a _____ Tell me what this is What do you see?	
Listener Responding (Receptive)	Following directions and or receptive identification (discrimination). Reinforcement is non-specific.	Point to the ____ Show me the____ Can you find the____ Where's the___? Touch the____ Give me the_____ Find the____	
Motor Imitation	Copying someone else's motor movement. Reinforcement is non-specific	"Do This" "Can you do this"? "Try this one" 'Do what I do" "You do this"	
Echoic	Repeating (vocally) what someone else says. Reinforcement is non-specific		
Intraverbal	Saying, signing, writing something related to what someone else said or answering questions (fill-in responses, word associations, conversation). Reinforcement is non-specific	Which one do you ___ with? You_____ with a_____ Something you___ is a ___ Tell me the one that has ___ The (animal) says____ What does the (animal) say?	

	Brief definition	Current Targets
Manding - Requesting	Asking for something you are motivated for (student gets reinforced with what they asked for)	

Parent Training & Communication

What can I do at home? - Tacting

- Opportunities for tacting should be built into your child's everyday life.
- You can help your child generalize the mastered tacts by asking them to label items in their natural environment (home, restaurants, playgrounds, stores, etc.).
- You should vary the way you present the question:
    - Tell me what you see
    - This is a _____
    - It's a _____
    - What's this?
    - Tell me what this is
- If your child makes an error, be sure to provide him with the correct response. Ideally, re-present the question so the child can respond correctly.
- Remember to REINFORCE your child for correct responses!!

ClassDojo

Staff Training: BST

- Instruction
  - Description/rationale
- Modeling
  - Modeled in person and took video @ January consult
- Rehearsal
  - Learner practiced skill in-vivo
  - Treatment fidelity

Feedback …Next Page

Staff Training: Feedback April Consult

4/13/2018; staff assistant & student

TEACHING LR SELECTING MULTIPLE PICTURES Procedural Fidelity Checklist	YES	NO	N/A
Is the instructional area neat and sanitized?	x		
Does the instructor have all materials needed for instruction organized and ready?	x		
Does the instructor have a variety of valuable reinforcers available?		x	
Were baseline data collected to determine the initial target?			x
Was a skill sequence developed and listed on the skill-tracking sheet?			x
After a target is mastered, does the instructor probe the next target?			x
Does the instructor collect cold probe data on the first trial of the day?			x
Does the instructor present known pictures in an array?	x		
Does the instructor direct the student to select a different set of known pictures for each trial?	x		
Does the instructor look at the student without providing additional prompts (e.g. making facial expressions, nodding head, looking at pictures)?	x		
Does the instructor keep his/her hand out for 2-3 seconds after the student gives the last picture?	x		
Does the instructor use a 2 second time delay for cold probe and known trials?			x
Does the instructor use a 0 second delay prompt for the teaching target using the echoic rehearsal joint control procedure?	x		
If an error occurs, does the instructor end the trial, represent the S° and prompt with a 0 second time delay using the echoic rehearsal joint control procedure?	x		
For error correction and errorless teaching, does the instructor continue to have the student rehearse the echoic until responding is strong?	x		
Percentage of Y's:	9/10 90%		

- Feedback
  - Increase motivation during instructional times
  - Isolate a reinforcer
  - Variety of different reinforcers
  - Build some behavior momentum

An Integrated System of Instruction
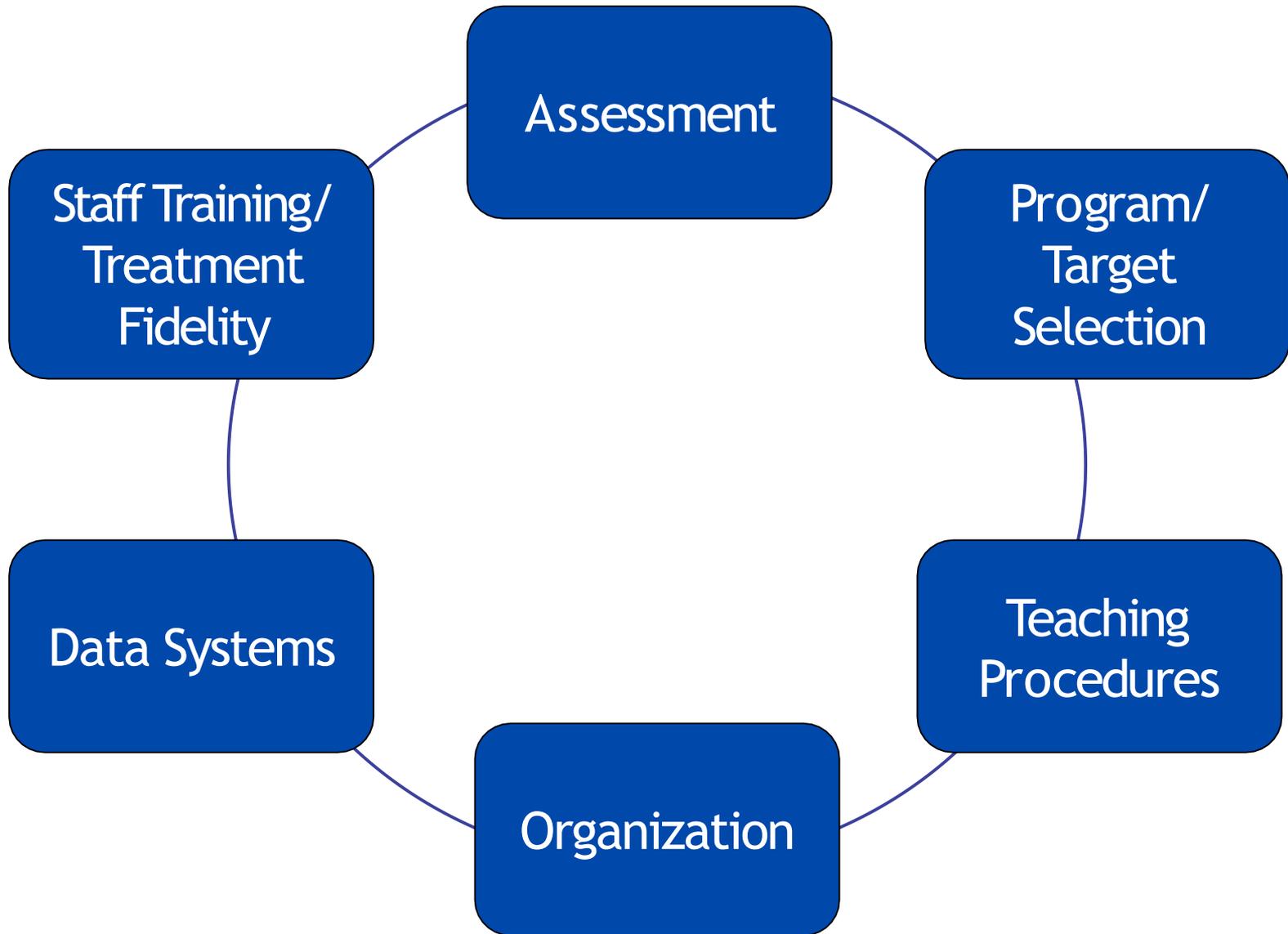
Some Additional Examples…

Early Learner: Imitation Skills

VB-MAPP
Master Scoring Form

Early Learner: Imitation Skills

- Imitation Skills in Context
  - Bathroom
  - Self-care

Discrete Trial Teaching

- LR multiple selection with joint control procedures

Natural Environment Learning

- Classroom Jobs
  - Snack Prep
  - Snack Facilitator

	Monday	Tuesday	Wednesday	Thursday	Friday
UA	Change Cycle Day	Snack Prep Change Cycle Day	Snack Change Cycle Day	Change Cycle Day	Snack Change Cycle Day
AG	Snack	NET book (match topic)	NET book (match topic)	Snack	NET book (match topic)
MP	Calendar	Snack Calendar	Snack Prep Calendar	Calendar	Snack Prep Calendar
WB	Snack prep	Sharpen pencils	Snack Prep	Sharpen Pencils	Sharpen Pencils

Vocational Learning

- Woodshop to Etsy Shop

Manding

- Mand for Items and Actions
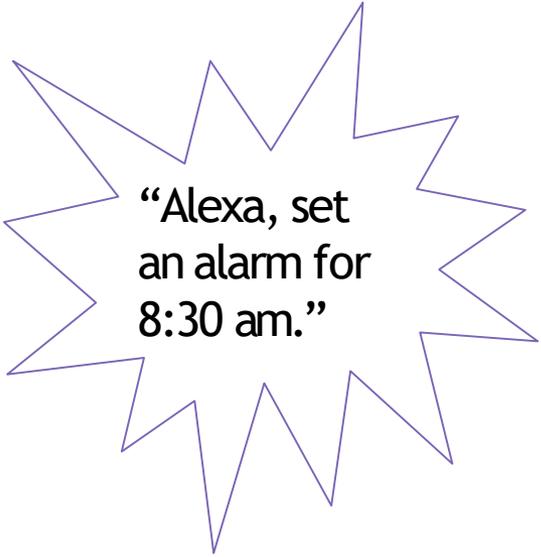
Real Life Technology

- Using the Echo Dot/ Alexa: Alexa Skills Project

- Component Skills
  - Echoic skills
  - Following directions
  - Tacting equipment

Alexa Echo Dot Ideas

Barriers to Implementation

© Lyn Topinka, 2006

Prerequisite Skills

- Pre-teaching relevant components
  - Tact
  - LR
  - Echoic
  - Imitation
  - Intraverbal
  - Textual

Fading Prompts

Prompting Hierarchy

Natural Cue
Gesture
Verbal
Visual/Picture
Model
Physical (partial, full)
Full Physical

MOST TO LEAST

LEAST TO MOST
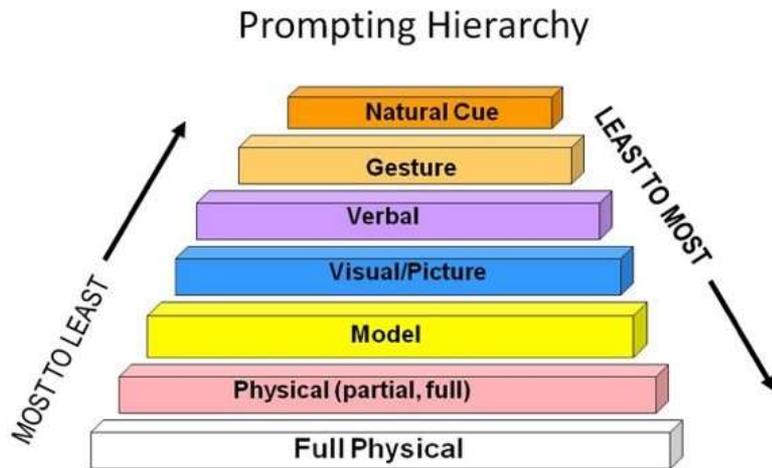
- Discuss selecting the level of prompt that is right for the student
- Discuss prompt fading judiciously

Not Enough Exemplars

How many tacts do you need to read this book?
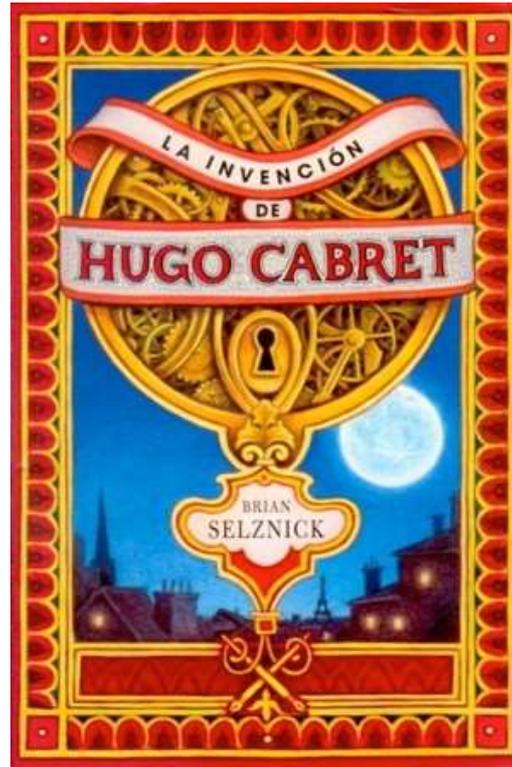
Not Enough Exemplars

"Inferences matter because writers omit a good deal of what they mean."

"For example, take a simple sentence pair like this: 'I can't convince my boys that their beds aren't trampolines. The building manager is pressuring us to move to the ground floor.' To understand this brief text the reader must infer:

- Jumping would be noisy for downstairs neighbors
- Neighbors complained about it
- Building manager is motivated to satisfy the neighbors
- No one would hear the noise if family lived on the ground floor."

(Willingham & Lovette, 2014)

Mastery to Novel

Sequential Modification

Train To Generalize

Program Common Stimuli

Train Loosely

Behavior Traps

Naturally Maintaining Contingencies

Train Sufficient Exemplars

Mediate Generalization

Use Indiscriminable Contingencies

- Setting criteria apriori to include generalization and novel responses
- Making the whole team aware and taking age into consideration; quality of life
- Creating a culture of generalization

Relevance
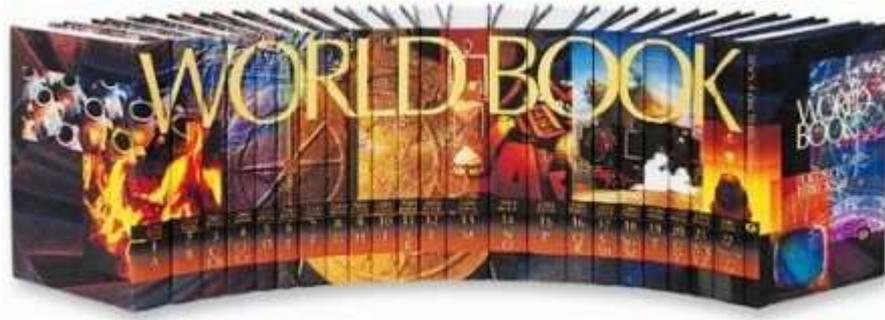
Does anybody use a World Book Encyclopedia?

- Teaching to the relevance

- 7 Dimensions: Applied, Analytic, Behavioral, Conceptually Systematic, Effective, Generality, & Technological

Environmental Competition

- Other competing factors that make completion of a task a challenge
  - Time
  - Effort
  - Staffing numbers
  - School/community climate
  - Admin support

Staff & Admin Training

- Teachers: Special Ed, Gen Ed
- Educational Staff: Paraeducator, RBT, TSS
- Professional Staff: SLP, PT, OT
- Administration: Principals, Supervisors, Directors
- Procedural drift: In her work on false memory, Elizabeth Loftus suggests memory is constructed and reconstructed

(Loftus, 2013)

Insufficient Reinforcement

Ethical Considerations

1.01 Reliance on Scientific Knowledge

- **Conceptually systematic**
  - Interventions consistent with principles demonstrated in literature

- **Technological**
  - Procedures described clearly & concisely
  - Others can implement accurately

(BACB, 2017)

Ethical Considerations

2.09 Treatment/Intervention Efficacy

- Effective
  - Interventions are monitored for impact on behavior
- Analytic
  - Decisions are data based
- Behavioral
  - Observable
  - Measurable

(BACB, 2017)

Ethical Considerations

4.03 Individualized Behavior-Change Programs

- Applied
  - Socially significant behaviors selected

- Generality
  - Behavior occurs in environments other than where taught

(BACB, 2017)

Cultural Awareness

Client

- Understand effects of environment
- Identify cultural values & contingencies
- Select socially meaningful goals and targets

Practitioner

- Consider values & preferences
- Seek educational & training experiences
- Evaluate biases & effects on relationship

"It is always a two-way street"
(Bolling, 2002, p.24)

(Fong, Catagnus, Brodhead, Quigley, & Field, 2016)

Start with the End in Mind

- ## Start with the end in mind
  - Harry Potter Warner Bros Entertainment (2011, November 11) A Conversation between JK Rowling and Daniel Radcliffe. Retrieved from: https://www.youtube.com/watch?v=7BdVHWz1DPU (@ 24min mark)

Word Cloud Activity

What word comes to mind when you hear: GENERALIZATION

Respond at **PollEv.com/nac129**

Text **NAC129** to **22333** once to join, then text your message

Thank You!

This presentation would not have been made possible without the following dedicated people:

Kim Booz, Carolyn Snyder, Nicole Verbos, Colleen Levinson, Roseanna Fabii, Alessandra Wynne, Maria Overturf, Steve Kowal, TaQuisha Perry, Students in Downingtown School District, Students in Great Valley School District, and Students in West Chester School District

References

- Alber, S. R., & Heward, W. L. (1996). "GOTCHA!" Twenty-five behavior traps guaranteed to extend your students' academic and social skills. *Intervention in School and Clinic, 31*(5), 285-289.
- American Psychological Association. (1990). *Guidelines for providers of psychological services to ethnic, linguistic, and culturally diverse populations.* Washington, DC: Board of Ethnic Minority Affairs.
- Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*(1), 91-97.
- Bord, S., Sidener, T. M., Reeve, K. F., & Sidener, D. W. (2017). Teaching on-task rollerblading and ice-skating to a child with autism. *Behavior Analysis in Practice*, *10*(2), 178–182. http://doi.org/10.1007/s40617-016-0150-z
- Boutot, E. A., & Hume, K. (2012). Beyond time out and table time: Today's applied behavior analysis for students with autism. *Education and Training in Autism and Developmental Disabilities, 47*(1), 23-38.
- Behavior Analyst Certification Board. (2017). Professional and ethical compliance code for behavior analysts.. Retrieved from https://www.bacb.com/wp-content/uploads/2017/09/170706-compliance-code-english.pdf
- Bolling, M. Y. (2002). Research and representation: A conundrum for behavior analysts. *Behavior and Social Issues, 12,* 19-28.
- Campbell, J.& Hozella, W. (2015). *Early numeracy and beginning math concepts* [Powerpoint Slides]. Retrieved from https://autism.outreach.psu.edu/sites/default/files/43Presentation.pdf.
- Cavalari, R. N. S., Gillis, J.M., Kruser, N., & Romanczyk, R.G. (2015). Digital communication and records in service provision and supervision: Regulation and practice. *Behavior Analysis in Practice, 8*, 176-189.

References

- Cooper, J.O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (*2nd ed.*). Upper Saddle River, NJ: Pearson Education, Inc.

- Dib, N., & Sturmey, P. (2007). Reducing student stereotypy by improving teachers' implementation of discrete-trial teaching. *Journal of Applied Behavior Analysis, 40*(2), 339-343.

- DiFalco, L. (2016, August 15). Myth busting ABA: Understanding ABA in practice [Web log post]. Retrieved from http://blog.reliasacademy.com/myth-busting-aba-understanding-aba-in-practice/

- Dijkstra, K., Bourgeois, M., Toumans, G., & Hancock, A. (2006). Implications of an advice-giving and teacher role on language production in adults with dementia. *The Gerontologist, 46*(3), 357-366.

- Dipuglia, A. (2016) *Programming for optimal outcomes* [PowerPoint slides]. Retrieved from https://autism.outreach.psu.edu/agenda/conference-schedule/programming-optimal-outcomes-session-extended-115

- Dixon, M. R. (2014). *Promoting the emergence of advanced knowledge relational training system: Direct training module.* Carbondale, IL: Shawnee Behavioral Press.

- Dunn-Naccarelli, A. (2016, March 9). What should I teach? An introduction to target selection [Web log post]. Retrieved from http://www.pattan.net/category/Educational%20Initiatives/Autism/blog/What_should_I_teach_An_Introduction_to_Target_Selection.html

- Engelmann, S., & Carnine, D. (1982). Theory of instruction: Principles and applications. New York: Irvington.

- Family Educational Rights Privacy Act, 20 U.S.C. § 1232g; 34 CFR Part 99 (1974).

- Fong, E. H., Catagnus, R. M., Brodhead, M. T., Quigley, S., & Field, S. (2016). Developing the cultural awareness skills of behavior analysts. *Behavior Analysis in Practice, 9*, 84-94.

References

- Gerhardt, P., Zawacki, J., & Satriale, G. (2013). Adaptive behavior in adolescents and adults with autism spectrum disorders. In P. Gerhardt & D. Crimmins (Eds.), *Social skills and adaptive behavior in learners with autism spectrum disorders* (pp. 159-170). Baltimore, MD: Paul H. Brookes.

- Gresham, F. M. (1989). Assessment of treatment integrity in school consultation and prereferral Intervention. *School Psychology Review*, 18, 37-50.

- Harrington, P. L., & Oakland, T. (2015). *Adaptive Behavior Assessment System* (3rd ed.). Torrance, CA: Western Psychological Services.

- Heward, W. I. (2005). *Exceptional children: An introduction to special education*. Upper Saddle River, NJ: Prentice Hall.

- Hetzler, L. (2016). Myths about Applied Behavior Analysis [Web log post]. Retrieved from https://www.relias.com/blog/myths-about-applied-behavior-analysis.

- Kelly, A. N. (2008, November). Common misconceptions about applied behavior analysis [Web log post]. Retrieved from http://www.behaviorbabe.com/commonmisconceptions.htm.

- Killion, W. K. (2003). *Functional independence skills handbook*. Austin, TX: Pro-Ed.

- Lafasakis, M. M., & Sturmey, P. (2007). Training parent implementation of discrete-trial teaching: Effects on generalization of parent teaching and child correct responding. *Journal of Applied Behavior Analysis, 40*(4), 685-689.

- Lagomarcino, A., Reid, D. H., Ivancic, M. T., & Faw, G. D. (1984). Leisure-dance instruction for severely and profoundly retarded persons: Teaching an intermediate community-living skill. *Journal of Applied Behavior Analysis, 17*(1), 71-84.

- Lowenkron, B. (1991). Joint control and the generalization of selection- based verbal behavior. *The Analysis of Verbal Behavior, 9*, 121-126.

References

- McGinnis, E. (2012). *Skillstreaming the elementary school child: A guide for teaching prosocial skills*. Champaign, IL: Research Press Publishers.
- McGreevy, P., Fry, T., & Cornwall, C. (2014). *Essential for living: A communication, behavior, and functional skills curriculum, assessment and professional practitioner's handbook*. Orlando, FL: Author.
- Palmer, D. C. (2012). The role of atomic repertoires in complex behavior. *The Behavior Analyst, 35*(1), 59-73.
- Parsons, M. B., Rollyson, J.H., & Reid, D. H. (2012). Evidence-based staff training: A guide for practitioners. *Behavior Analysis in Practice, 5*(2), 2-11.
- Partington, J.W., & Mueller, M. M. (2012). *The assessment of functional living skills: Community participation skills assessment protocol*. Pleasant Hill, CA: Behavior Analysts, Inc.
- Partington, J.W., & Mueller, M. M. (2012). *The assessment of functional living skills: Essential skills for independence at home, school, and in the community.* Pleasant Hill, CA: Behavior Analysts, Inc.
- Partington, J.W., & Mueller, M. M. (2012). *The assessment of functional living skills: School skills assessment protocol*. Pleasant Hill, CA: Behavior Analysts, Inc.
- Skinner, B. F. (1987). *Upon further reflection*. Englewood Cliffs, NJ: Prentice Hall.
- Smith, T. (2001). Discrete trial training in the treatment of autism. *Focus on Autism and Other Developmental Disabilities, 16*(2), 86-92.
- Sparrow, S. S., Cicchetti, D. V., & Saulnier, C. A. (2016). *Vineland Adaptive Behavior Scales* (3rd ed.). Bloomington, MN: Pearson.
- Stokes, T. F., & Baer, D. M. (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis, 10*(2), 349–367. http://doi.org/10.1901/jaba.1977.10-349.
- Stokes, T. (1992). Discrimination and generalization. Journal of Applied Behavior Analysis, 25, 429–432. Google Scholar, Crossref, Medline, ISI.

References

- Sundberg, M. L. (2008). *VB-MAPP Verbal behavior milestones assessment and placement program: A language and social skills assessment program for children with autism or other developmental disabilities.* Concord, CA: AVB Press.
- Sundberg, M. L., & Partington, J. W. (1999). The need for both discrete trial and natural environment language training for children with autism. In P. M. Ghezzi, W. L. Williams, & J. E. Carr (Eds.), *Autism: Behavior analytic perspectives* (pp.139-156). Reno, NV: Context Press.
- Teach For America. (2011). *Instructional planning and delivery.* Retrieved from http://teachingasleadership.org/sites/default/files/Related-Readings/IPD_2011.pdf
- TED. (2013, June). Elizabeth Loftus: How Reliable is Your Memory? [Video File]. Retrieved from https://www.ted.com/talks/elizabeth_loftus_the_fiction_of_memory/reading-list
- Vilardaga, R., Hayes, S. C., Levin, M. E., & Muto, T. (2009). Creating a Strategy for Progress: A Contextual Behavioral Science Approach. The Behavior Analyst, 32(1), 105–133.
- Ward, T.A. (2015, April). Ten myths of applied behavior analysis. [web log post]. Retrieved from https://bsci21.org/10-myths-of-applied-behavior-analysis-html/
- Warner Bros Entertainment (2011, November 11). A Conversation between JK Rowling and Daniel Radcliffe. Retrieved from: https://www.youtube.com/watch?v=7BdVHWz1DPU
- Williams, G. E., & Cuvo, A. J.(1986). Training apartment upkeep skills to rehabilitation clients: a comparison of task analytic strategies. *Journal of Applied Behavior Analysis*, *19*(1), 39–51. http://doi.org/10.1901/jaba.1986.19-39.
- Willingham, D. T., & Lovette, G. (2014, September 26). Can reading comprehension be taught? *Teachers College Record.* Retrieved from http://www.tcrecord.org.proxy.its.virginia.edu

Contact Information   www.pattan.net

Rebekah Houck

c-RHouck@pattan.net

Amy Naccarelli

c-ANaccarelli@ pattan.net

pennsylvania
DEPARTMENT OF EDUCATION

Bureau of Special Education
Pennsylvania Training and Technical Assistance Network

Commonwealth of Pennsylvania

Tom Wolf, Governor