

Direct Instruction Workshop

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Pennsylvania Training and Technical Assistance Network



Overview and Learning Objectives

- Review effective/direct instruction (di) and Direct Instruction (DI)
- Review of available DI curricula
- Student Readiness Skills
- Review basic teaching procedures
 - Signal Skill Checks
- Data Collection Procedures

Review Effective/direct instruction (di) and Direct Instruction (DI)



Characteristics of Effective Instruction

- Classroom organizational strategies that lead to high levels of student performance:
 - Sufficient time allocated for instruction
 - Adequate range of examples and non-examples
 - Materials at appropriate instructional level
 - Highly structured with focus on instructional content



Characteristics of Effective Instruction

- Clear goals selected and controlled by teachers
- Skills sequenced from easiest to hardest
 - Appropriate pacing of lesson
 - Continuous instruction
- Begin lesson with review of previous learning
- Present new material in small steps
- Provide models
- Provide scaffolds for difficult tasks
- Use clear and concise language
- Monitor student learning/responding to ensure high rates of correct student responding



Characteristics of Effective Instruction

- Immediate performance feedback (reinforcement)
 - praise should be specific
- Specific correction strategies for non-attending, non-responding and signal violations, response errors
- Establish instructional control
 - Seating arrangement
 - Introduce rules that the group is to follow right from the start
 - Use clear teaching signals
 - Use quick pace and group responses
 - Use of individual turns as a tactical strategy



direct instruction (di)

- Systematic approach to instruction correlated with high levels of student performance
- Students will learn if we teach essential skills in the most effective and efficient manner possible; focus is placed on explicit and systematic teacher-led instruction



direct instruction (di) or explicit instruction

- Correct previous day's homework & **review** what has been taught
- Describe **goal** of lesson
- Present new material in small steps, using clear instructions and modeling (“**I do**”)
- Provide repeated opportunities for students to practice with feedback (“**We do**”); monitor student learning through varied exercises
- Continue with practice until independent performance (“**You do**”)
- Provide review (“**You do over time**”) *videos



What is **D**irect **I**nstruction (DI)?

- An explicit, scientifically-validated model of effective instruction
- A *system* of teaching that attempts to control **all** the variables that make a difference in the performance of children
- Published, research-validated curriculum
- Formerly called DISTAR



Research Outcomes Show

- 1999 - Direct Instruction was identified as one of three programs (out of 24) to show strong evidence of positive outcomes on student achievement.
 - The program showed evidence of High Standards, Effectiveness, Replicability, Support Structures
- 2002 - Direct Instruction is one of three models (out of 29) with “strongest evidence for effectiveness.”

DI Philosophy

- The DI philosophy holds that the single most decisive factor in student's performance is the quality of instruction they receive from their teachers. This philosophy is based on certain principles:
 - Learning is a behavioral process that can be observed and directly measured
 - All children can learn when taught correctly, regardless of past history
 - All teachers can be successful, given effective teaching materials and presentation techniques

Main Components of DI Programs

1. Program Design
2. Organization of Instruction
3. Teaching Techniques/Teacher-Student Interactions

DI Components: Program Design

- Program Design is characterized by 5 specific features
 1. Analyzing Content
 2. Clear Communication
 3. Instructional Formats
 4. Sequencing of Skills
 5. Track Organization



Program Design: Analyzing Content

- Identification of concepts, rules, strategies, and “big ideas”
- Detailed analysis of the content
 - the content area is carefully analyzed to find key big ideas that can be taught to students to enable them to exhibit generalized performance to the widest possible range of examples and situations



Program Design: Clear Communication

- Effective and efficient learner friendly instruction
- Five Principles for sequencing and ordering instruction to communicate clearly to students
 1. Wording Principle
 2. Setup Principle
 3. Difference Principle
 4. Sameness Principle
 5. Testing Principle

Program Design: Clear Communication

Wording Principle

- Use wording that is the same or similar across all items
 - makes instruction as clear as possible
- Helps focus students' attention on the relevant details of the instruction
 - by reducing distractions or confusion that may be caused by variations in teacher language

Program Design: Clear Communication

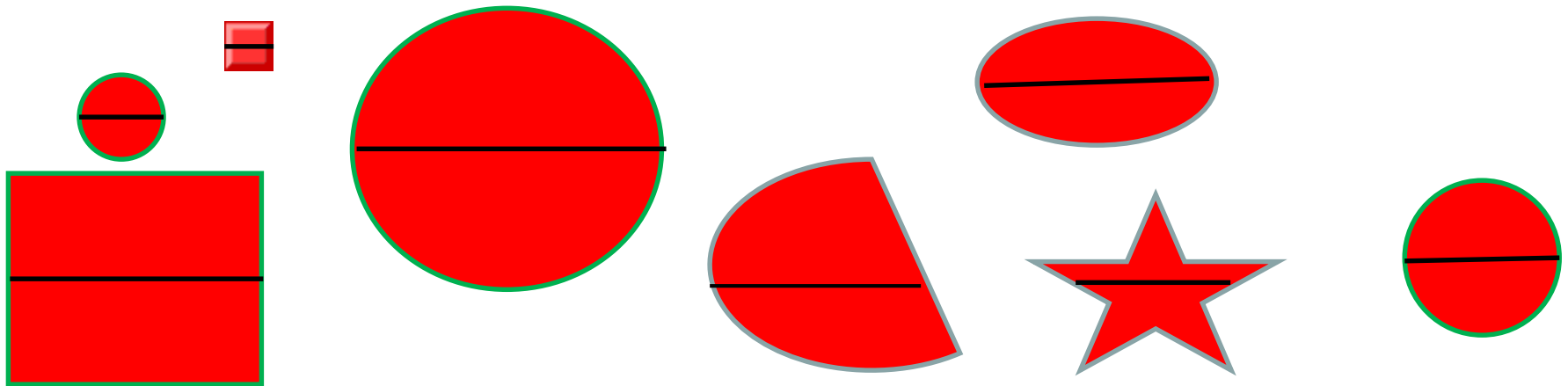
Wording Principle

Following the wording principle		Not following the wording principle	
$\frac{3}{2}$ The larger number is on top.	$\frac{2}{3}$ The smaller number is on top.	$\frac{3}{2}$ The larger number is on top.	$\frac{2}{3}$ In this ratio statement, the denominator is greater than the numerator.



Program Design: Clear Communication Set-Up Principle

- Examples and non-examples share the greatest possible number of irrelevant features
 - should be identical **except** in the critical aspect being taught
- Otherwise, students could attend to other features which could lead to errors in the future
 - this ambiguity is considered poor communication



Program Design: Clear Communication

Set-Up Principle

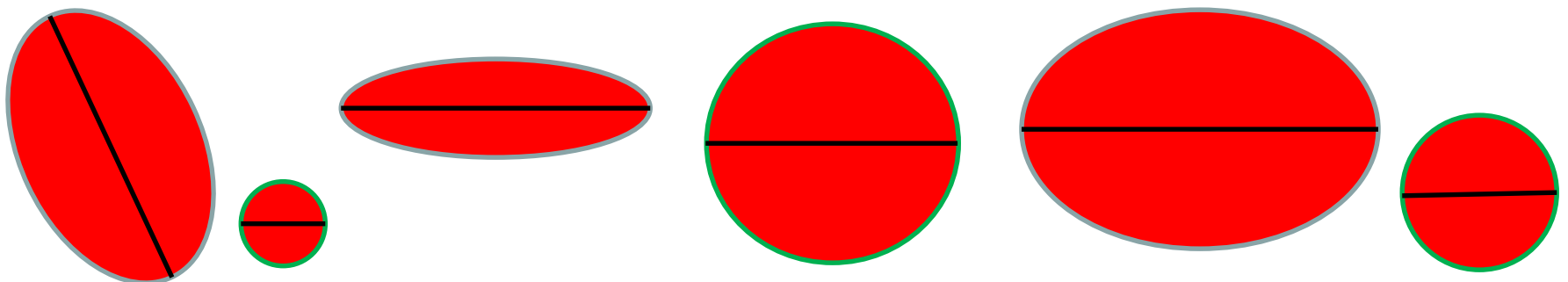
Following the setup principle	Not following the setup principle
 This is on. This is not on.	 This is on. This is not on.



Program Design: Clear Communication

Difference Principle

- Non-examples are similar to one another and to the examples **except** in the critical feature being taught
 - The difference of the non-example is **just different enough** to change the positive example to a negative example
- Most effective when the items are shown in contrast to one another
 - makes the similarities and differences most obvious



Program Design: Clear Communication

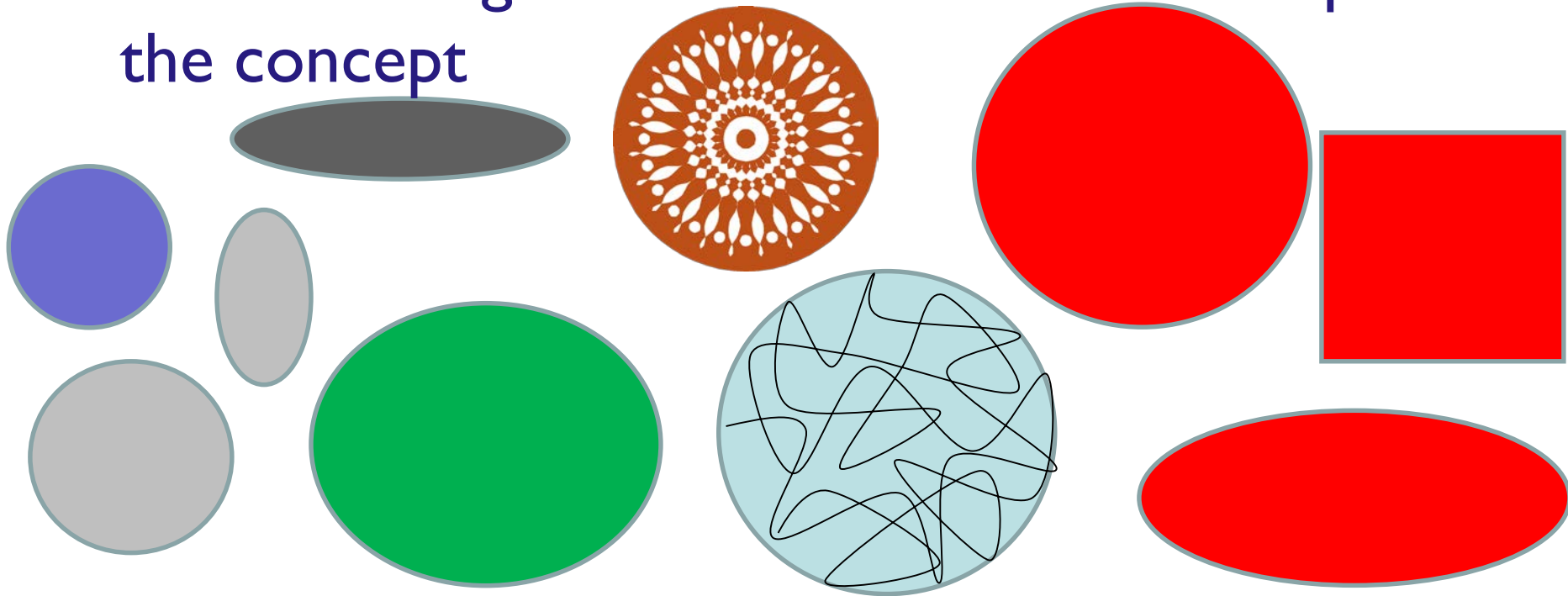
Difference Principle

Following the difference principle	Not following the difference principle
 The line is horizontal. The line is not horizontal.	 The line is horizontal. The line is not horizontal.

Program Design: Clear Communication

Sameness Principle

- Show the range of variation using examples that differ from each other as much as possible yet still illustrate the concept
 - Far-Out Exemplars
- This fosters generalization to novel exemplars of the concept



Program Design: Clear Communication

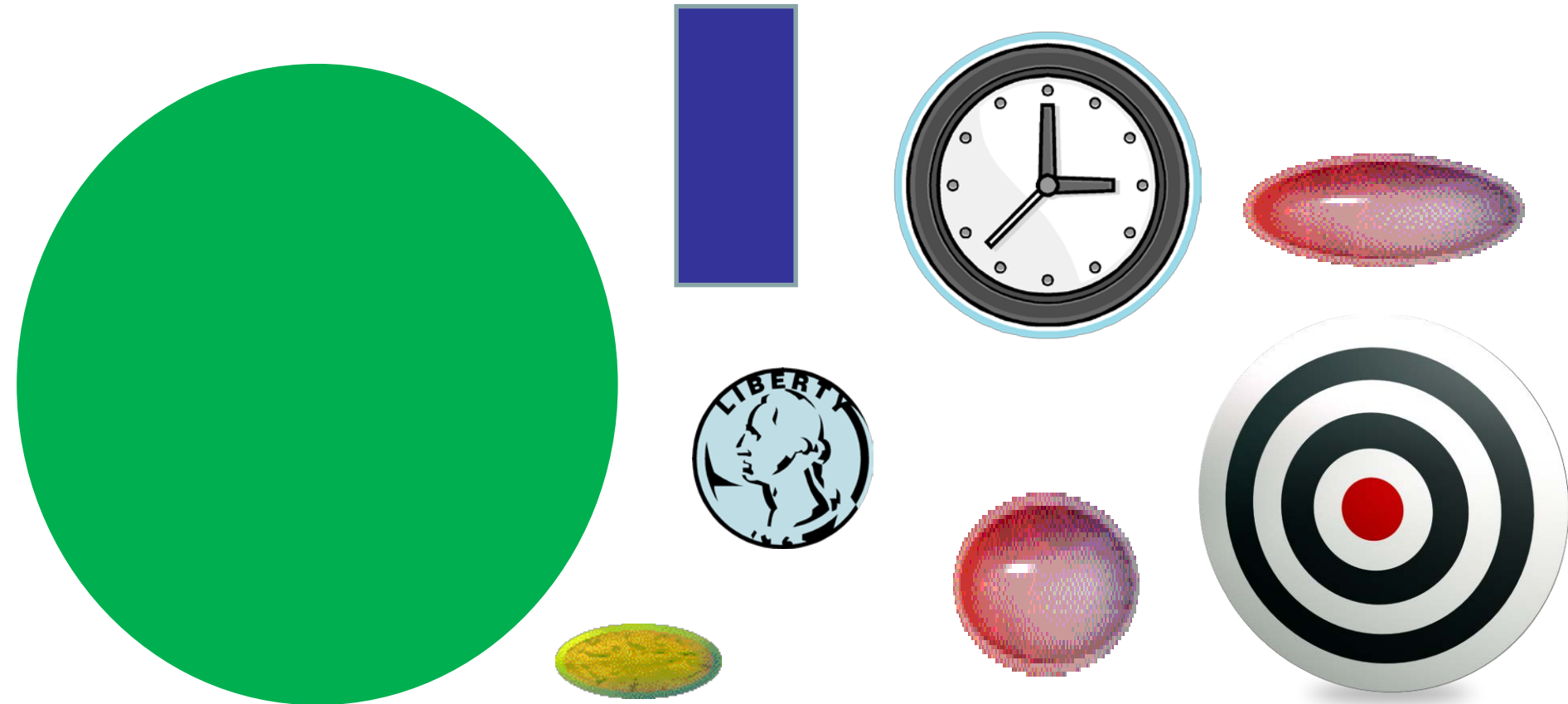
Sameness Principle

Following the sameness principle		Not following the sameness principle	
	<u>example shown</u>		<u>example shown</u>
"This is a dog."	Chihuahua	"This is a dog."	Cocker Spaniel
"This is a dog."	Irish Wolfhound	"This is a dog."	Beagle
"This is a dog."	Cocker Spaniel	"This is a dog."	Fox Terrier

Program Design: Clear Communication

Testing Principle

- Test novel, untaught examples and non-examples in random order
 - assesses acquisition of the **concept** and generalization



Program Design: Clear Communication

Testing Principle

Following the testing principle	Not following the testing principle
$2/4$ Is this an improper fraction?	$4/3$ Is this an improper fraction?
$3/5$ Is this an improper fraction?	$3/5$ Is this an improper fraction?
$8/5$ Is this an improper fraction?	$8/5$ Is this an improper fraction?
$48/32$ Is this an improper fraction?	$15/32$ Is this an improper fraction?
$18/12$ Is this an improper fraction?	$18/12$ Is this an improper fraction?
$6/7$ Is this an improper fraction?	$6/7$ Is this an improper fraction?
$9/3$ Is this an improper fraction?	$9/3$ Is this an improper fraction?
	Note the alternating order: yes, no, yes, no, yes, no, yes



Program Design: Instructional Formats

- Designed to structure the interactions between the teacher and students
 - examples, explanations, questions, and corrections
 - clear and concise formats
 - focuses on the important aspects of instruction
 - provides appropriate support for students' developing skills
 - ensures clear communication with students
- Formats change as students become more proficient
 - are gradually modified (5 formats) so that the students learn to apply the skills independently

Program Design: Instructional Formats

Format 1.

1. Teacher: Remember, when there is an 'e' on the end, this letter (point to it) says its name.
2. Teacher: Is there an 'e' on the end? Students: Yes.
3. Teacher: Will this letter (point) say its name. Students: Yes.
4. Teacher: What is its name? (Or what sound will it make?) Students: a.
5. Teacher: So what is the word? Students: rate.

Repeat Steps 2 through 4 for each of the following words: name, not, vote, rat, him, fine.

Format 3.

1. Teacher: What sound will this letter make? Students: a.
2. Teacher: So what is the word? Students: rate.

Repeat Steps 1 and 2 for each of the following words: name, not, vote, rat, him, fine.

Format 5.

Students encounter VCe words in story reading with no additional assistance.



Program Design: Sequencing of Skills

- Maximize success and minimize confusion
- Learning can be made more or less difficult depending on the order in which skills are taught
- Four guidelines for determining sequence
 1. prerequisite skills for a strategy taught before the strategy itself
 2. instances consistent with a strategy should be taught before exceptions to that strategy
 3. easy to hard
 4. concepts that are likely to be confused should be separated (initially)

Program Design: Track Organization

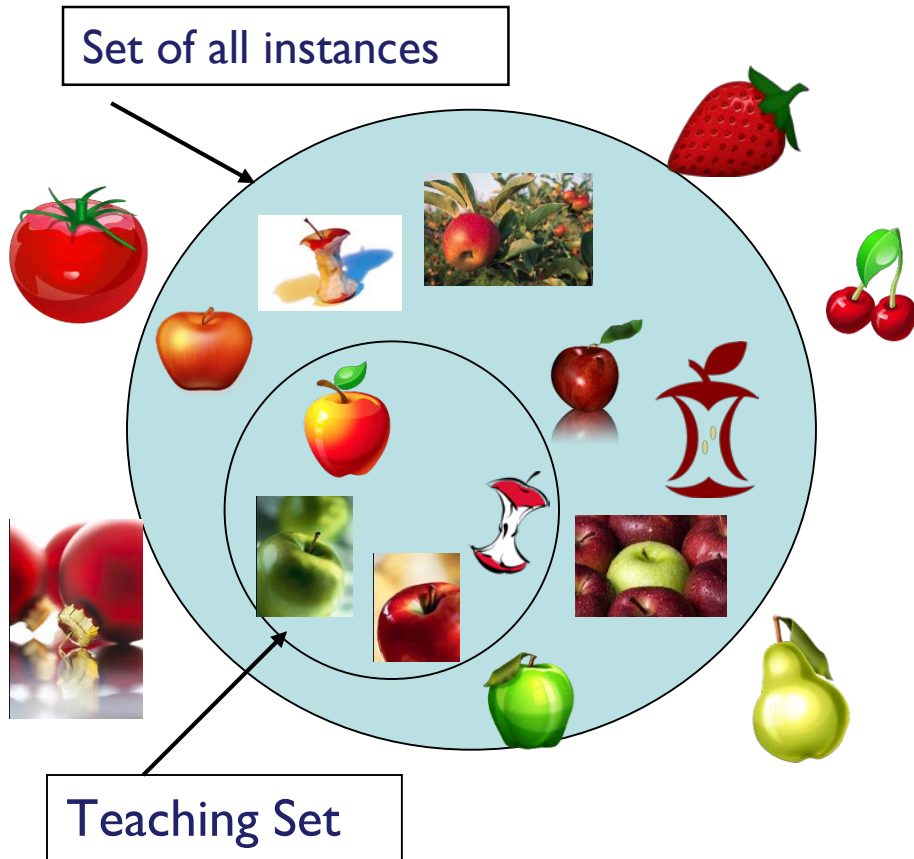
- DI curriculum are organized by tracks as opposed to many traditional curriculums which are organized by units
- Tracks are sequences of activities that teach a skill across multiple lessons
- Each lesson contains activities from several tracks
 - spiraling curriculum



Program Design

- Provides opportunities for guided practice and cumulative review
- Incorporates continuous assessment and management
- Allows for General Case Instruction

Program Design: General Case Instruction



“The general case has been taught when, after instruction on some tasks in a particular class, any task in that class can be performed correctly.”

Becker and Engelmann, 1978



Program Design: General Case Instruction

10 whole words

vs.

10 sounds and blending skill =

- 720 three-sound words
- 4,320 four-sound words
- 21,600 five-sound words

(Becker, 1971)

Main Components of DI: Organization of Instruction

- Organization of Instruction is characterized by 5 specific features
 1. Instructional grouping
 2. Instructional time
 3. Scripted presentation
 4. Continuous assessment
 5. Reinforcement

Organization of Instruction: Instructional Grouping

- Grouping
 - Group size and composition adjusted to accommodate and reflect student progress and lesson objectives
 - ***Grouping is flexible and dynamic***
 - Group size is differentiated according to the needs of students
 - ***Students with the greatest needs are taught in the smallest groups***
 - Cross-class or cross-grade grouping may be used *when appropriate* to maximize opportunity to tailor instruction to students performance level
 - ***Groups are homogeneous***

Organization of Instruction: Instructional Time

- Allocate sufficient time for teaching
 - Schedule
- Allocated time must be used efficiently
 - Pace and rate of responding

Organization of Instruction:

Scripted Presentation

- Ensures students access well-designed instruction
- Scripted Presentations
 - o Provide examples
 - o Standardized wording
 - o Ensure precision
 - o Provide efficient corrections
 - o Controlled time per activity
 - o Increased academic learning time



Organization of Instruction: Scripted Presentation

- Relieves teachers of the role of instructional designer
- Allows teachers to focus on effective delivery and making adjustments for individual needs
- Rules for reviewing scripts
 - Decide where to add **think time** and **get ready**
 - Where to add **pause** and **punch**
 - Where to **verify responses**
 - Where to add **overt responses**
 - Where to add **meaningful repetition**
 - Where to **modify** or **add examples**



- | Placement Test Scoring Sheet for Reading Mastery | | | | | | | | | | | |
|--|--|-------------------------|---|-------------------------|------------------|------|---|-------|--|-------|--|
| Student's Name _____ | | Date _____ | | | | | | | | | |
| Circle 1 point or 2 points if the student answers correctly. | | | | | | | | | | | |
| Part 1 | | Part 2 | | | | | | | | | |
| Exercise 1 | step b 0 1 point | Exercise 1 | step a 0 2 points | | | | | | | | |
| | step c 0 1 point | | step b 0 2 points | | | | | | | | |
| Exercise 2 | step b 0 1 point | Exercise 2 | step b 0 1 point | | | | | | | | |
| | 0 1 point | | 0 1 point | | | | | | | | |
| | 0 1 point | | step 3 0 1 point | | | | | | | | |
| | 0 1 point | | 0 1 point | | | | | | | | |
| | 0 1 point | | step d 0 1 point | | | | | | | | |
| | step d 0 1 point | | 0 1 point | | | | | | | | |
| | 0 1 point | | | | | | | | | | |
| | 0 1 point | | Total Points | | | | | | | | |
| | 0 1 point | | | | | | | | | | |
| Exercise 3 | step b 0 2 points | Number of Points | Start At: | | | | | | | | |
| | step c 0 2 points | 0-7 | <i>Reading Mastery, Grade K, Lesson 11</i> | | | | | | | | |
| Exercise 4 | step b 0 2 points | 8-10 | If possible, should be placed in <i>Reading Mastery: Classic Edition, Fast Cycle</i> . | | | | | | | | |
| | step d 0 2 points | | | | | | | | | | |
| | Total Points | | | | | | | | | | |
| <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 15%;">Number of Points</td> <td style="vertical-align: top;">Start At:</td> </tr> <tr> <td style="padding: 5px;">0-14</td> <td style="padding: 5px;"><i>Reading Mastery, Grade K, Lesson 1</i></td> </tr> <tr> <td style="padding: 5px;">15-18</td> <td style="padding: 5px;"><i>Reading Mastery, Grade K, Lesson 11 (Circle the lesson)</i></td> </tr> <tr> <td style="padding: 5px;">19-20</td> <td style="padding: 5px;">Continue testing in part 2, (Check box) </td> </tr> </table> | | | | Number of Points | Start At: | 0-14 | <i>Reading Mastery, Grade K, Lesson 1</i> | 15-18 | <i>Reading Mastery, Grade K, Lesson 11 (Circle the lesson)</i> | 19-20 | Continue testing in part 2, (Check box) |
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| 15-18 | <i>Reading Mastery, Grade K, Lesson 11 (Circle the lesson)</i> | | | | | | | | | | |
| 19-20 | Continue testing in part 2, (Check box) | | | | | | | | | | |

Organization of Instruction: Reinforcement

- Provide reinforcement to keep students motivated and increase the future probability that correct, appropriate responding will occur
- Natural reinforcing consequences
 - Increase in language
 - Learning to read
 - Seeing their own improvement



Main Components of DI: Teaching Techniques

1. Active Student Responding
2. Instructional Format
 - Group Unison Responding
 - Signals
 - Pacing
 - Teaching to Mastery
3. Correction Procedures
4. Motivation

*videos



Teaching Techniques: Active Student Responding

- Clear expectations (rules and routines)
- Materials organization
- Seating
 - Assign seating
 - Lower performers closest to teacher
 - All students can see the teacher/materials
 - Teacher can see all students in the group
 - Teacher can see independent workers
- Instructional Format
 - Model, Lead, Test, Verify:
“I do, We do, You do, Confirm”



Teaching Techniques: Instructional Format

Frame: The teacher states the learning task at hand.

Model: The teacher provides the expected response verbally or through demonstration. If needed, the teacher repeats the model to make sure all students heard or saw it.

Lead: The teacher and students respond together—several times if needed to ensure that all students practice responding correctly with teacher.

Test/Check: Students perform the task independently, several times if needed to do it correctly.

Verification: The teacher provides specific praise—stating what the students learned.

Instructional Format: Sample Format

m

man

Frame	Teacher	<i>“Let’s say some sounds”</i>	<i>“This is the word Man”</i>
Model	Teacher	<i>“This letter makes the sound /mmm/”</i>	<i>“My turn to sound out this word. Mmmaannn”</i>
Lead	Teacher and Students	<i>“Say it with me, /mmm/”</i>	<i>“Sound it out with me, mmmaaannn”</i>
Test/ Check	Students	<i>“What sound?”</i>	<i>“All by yourselves, sound it out.”</i>
Verify	Teacher	<i>“Yes, /mmm/”</i>	<i>“Yes, mmmaaannn”</i>

Instructional Format: Signals

- Cues that are used to control the timing of students' responses
 - Increases the likelihood of ALL students initiating a response
 - Allows ALL students to practice the task
 - Allows the instructor to monitor every student
 - Allows the instructor to hear incorrect responses and correct them immediately
- 2 types of signals
 - Visual
 - Auditory

Teaching Techniques: Correction Procedures

- All statement corrections start with “My turn” and end with “starting over”

Error Correction Template:

Model: “My turn”

Lead: “Say it with me”

Test: “Your turn by yourself”

Verify: “Yes, _____”

Starting Over: Start at beginning of task/lesson

Teaching Techniques: Motivation

- Learning and motivation are closely related
- Student success
 - When learning is harder, an increase in reinforcement may be required
- Appropriate Placement



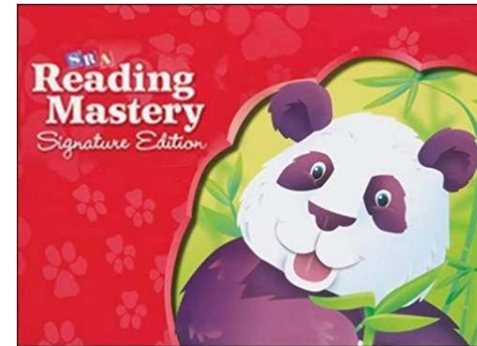
Review of Available DI Curricula

Review of Available DI Curricula

- Direct Instruction Reading Curriculum
- Direct Instruction Language Curriculum
- Direct Instruction Math Curriculum

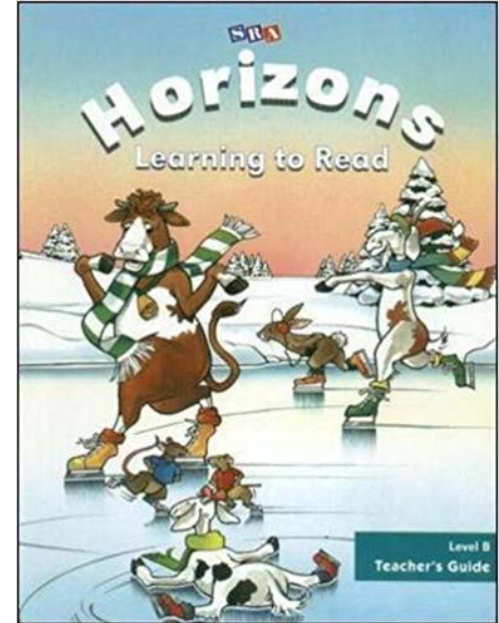
Review of Available DI Curricula: Reading

- Reading Mastery
 - Three versions: Classic, Plus and Signature Edition
- Reading Mastery Signature Edition (2008)
 - Kindergarten through fifth grade
 - Fast Cycle is available
 - Includes the following strands that are purchased separately:
 - Reading, Language Arts and Literature strands
 - Transition Program between Grade 1 and 2
additional 35 lessons to increase fluency



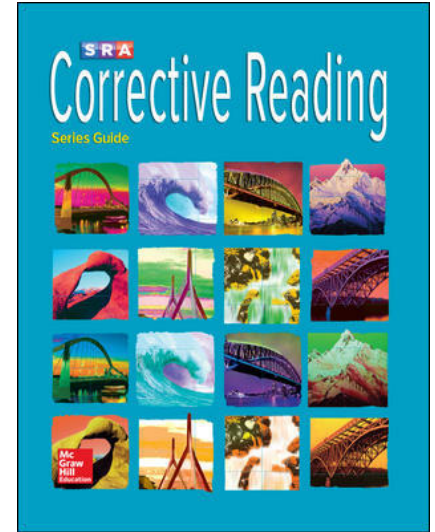
Review of available DI Curricula: Reading

- Horizons
 - First through fourth grade
 - Uses traditional orthography
 - Other types of prompts used
 - Underlines
 - Different colored text
 - NOT appropriate for the at-risk student with little language or literacy knowledge
 - Student must demonstrate mastery of letter names and fluently follow instructions
 - Four levels → A, B, A/B, and C/D



Review of available DI Curricula: Reading

- Corrective Reading
 - Fourth grade – high school
 - Four decoding modules and four comprehension modules
 - A: reading at early first-grade level
 - B-1: reading at late first-grade level
 - B-2: reading at beginning third-grade level
 - C: focuses on late elementary school decoding
 - Comprehension Modules
 - Begin with students at a fourth-grade level





Review of available DI Curricula: Language

- Language Programs
 - Three Main programs:
 - Language for Learning
 - Language for Thinking
 - Language for Writing
- Formerly known as DISTAR Language I, II and III

Review of available DI Curricula: Language

- Language for Learning
 - Pre-K through second grade
 - Oral program that requires no reading for the student
 - Focuses on foundational language concepts and vocabulary
 - Teaches common information
 - Teaches how to analyze and make predictions around statements
 - Fast Cycle available



Review of available DI Curricula: Language

- Language for Learning
 - Student with less than adequate language knowledge and skill for their age
 - Four year old children in preschool programs
 - Primary age children in bilingual and ESL programs
 - Primary age children in Title I and Special Education programs
 - Students in speech correction and language classes

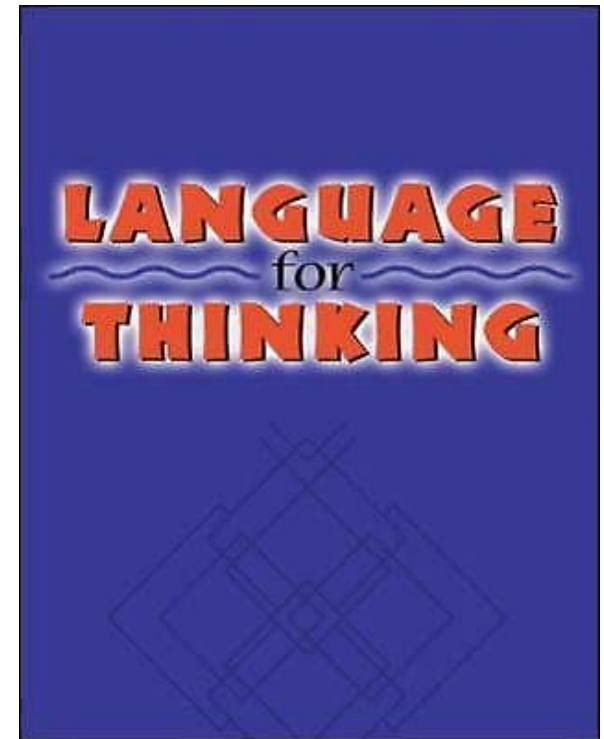
Review of available DI Curricula: Language

- Language for Learning
 - Actions
 - Descriptions of objects
 - Information and background knowledge
 - Instructional words and problem-solving concepts
 - Classification
 - Problem-solving strategies and applications



Review of available DI Curricula: Language

- Language for Thinking
 - First through third grade
 - Expands concepts learned in Language for Learning
 - Applies concepts to build and teach problem solving, analytical and deductive reasoning skills
 - Expands vocabulary



Review of available DI Curricula: Language

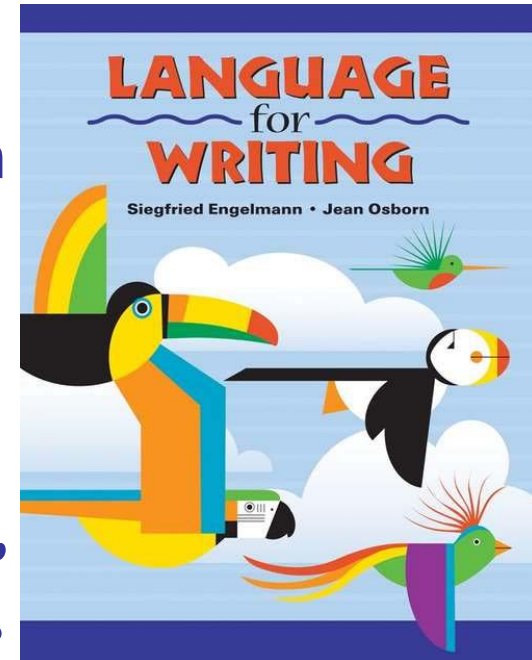
- Language for Thinking
 - Intended for children who are older or have higher skills than those placed in *Language for Learning*
 - Children who have completed *Language for Learning*
 - First and Second graders with less than adequate language knowledge and skill for their age and have trouble comprehending what they read
 - Older children in bilingual and ESL programs
 - Primary age children in Title I and Special Education programs
 - Students in speech correction and language classes

Review of available DI Curricula: Language

- Language for Thinking
 - o Information and background knowledge
 - o Reasoning and critical thinking
 - o Vocabulary development
 - o Observing and describing
 - o Comprehension concepts
 - o Interpreting graphic displays

Review of available DI Curricula: Language

- Language for Writing
 - Second through sixth grade
 - Focuses on teaching communication skills through writing
 - Supports writing skills through writing narratives, use of specific words, making precise comparisons, summarizing and retelling, as well as proofreading for punctuation, grammar and word usage

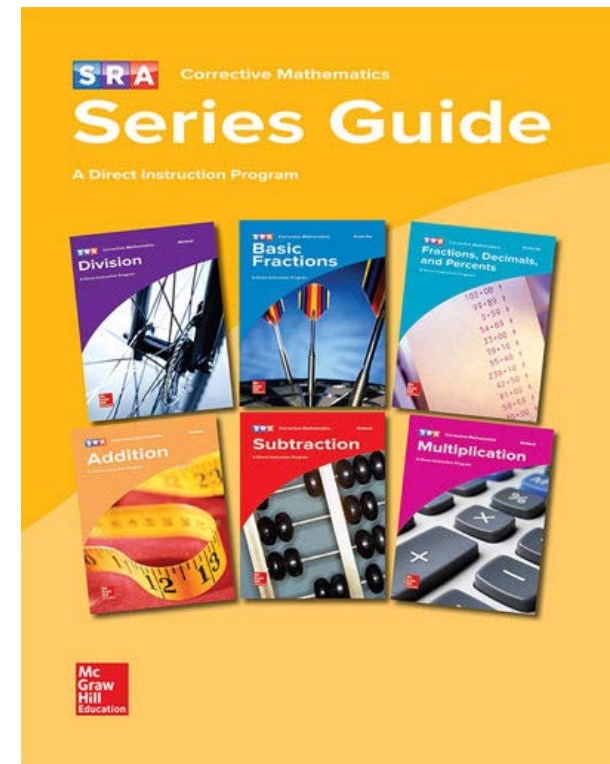
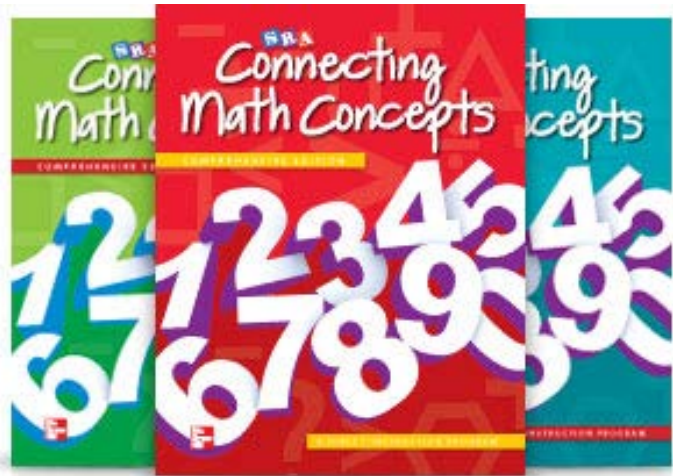


Review of available DI Curricula: Language

- Language for Writing
 - Students who have completed *Language for Learning* and *Language for Thinking*
 - Should be reading and writing at the end of second grade or beginning of third grade level and have adequate knowledge of basic spoken English

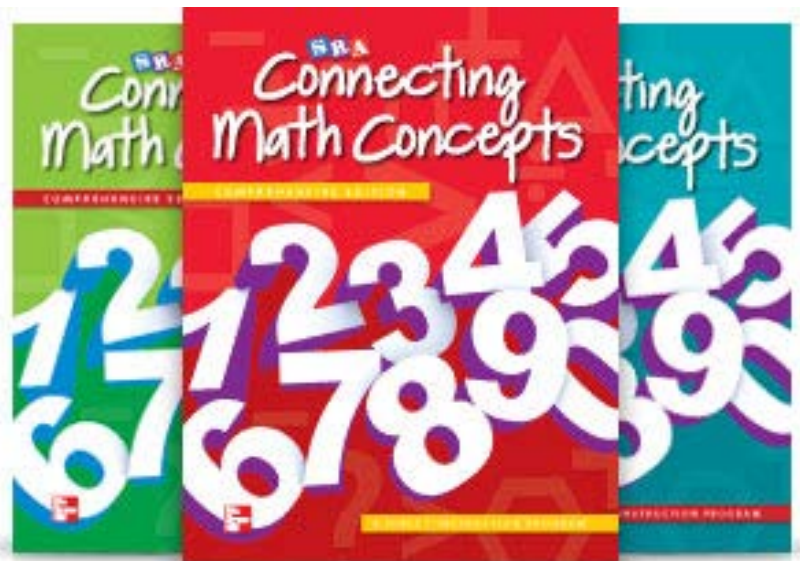
Review of available DI Curricula: Math

- Math Programs
 - Connecting Math Concepts: Comprehensive Edition 2012
 - DISTAR Arithmetic
 - Corrective Math



Review of available DI Curricula: Math

- Connecting Math Concepts
 - Kindergarten through fifth grade
 - Levels A-E
 - Ongoing development of mathematical concepts and problem solving



Review of available DI Curricula: Math

- Distar Arithmetic
 - o Kindergarten through third grade
 - o Two Level – I & II
 - o Teaches basic math skills and concepts
 - o Frequent in-program mastery tests

Review of available DI Curricula: Math

- Corrective Math
 - Third grade through adult
 - Two groups:
 - Group 1 – Addition, subtraction, multiplication and division
 - Group 2 – Fractions, decimals, percents, ratios and equations



Review of Available DI Curricula

- DI programs are published and developed by the Scientific Research Associates (SRA), a part of McGraw-Hill School Education
<https://www.mheonline.com/segment/view/1/3>
- Originally designed for instruction within general education setting BUT can be used with special education students in small groups or individually

Student Readiness Skills



General Student Readiness Skills

- Complete or mostly complete VB-MAPP
 - o Extensive Tact Repertoire
 - parts and features of objects, adjectives, class, yes/no, noun/verb combinations, noun/adjective combinations
 - o Uses carrier phrase when labeling nouns with verbs or adjectives
 - o Beginning to tact prepositions
 - o Beginning to tact pronouns
 - o Beginning to use appropriate autoclitic phrases/sentence structure

General Student Readiness Skills

- With some learners it may be beneficial to start the program prior to completing the VB-MAPP in order to teach some of the more complicated Level 3 skills using the DI curricula

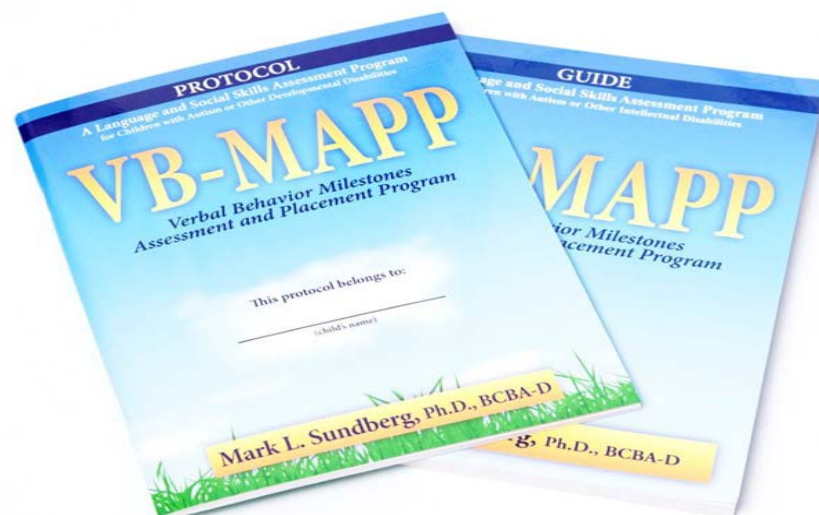
General Student Readiness Skills

Child's name		Key:		Score	Date	Color	Tester
Date of birth		1st test:	149	9/1/16		DL	
Age at test		2nd test:	170	5/20/17		DL	
		3rd test:					
		4th test:					

LEVEL 3													
	Head	Text	Listener	VP/MTS	Play	Social	Reading	Writing	LRFFC	IV	Group	Ling.	Math
11													
10													
9													
8													
7													
6													
5													
4													
3													
2													
1													

LEVEL 2												
	Head	Text	Listener	VP/MTS	Play	Social	Imitation	Echoic	LRFFC	IV	Group	Ling.
10												
9												
8												
7												
6												
5												
4												
3												
2												
1												

LEVEL 1									
	Head	Text	Listener	VP/MTS	Play	Social	Imitation	Echoic	Vocal
5									
4									
3									
2									
1									



Other critical skills:

- Choral/unison: Students' ability to respond along with others in a group setting (responding on signal)
- Individual Responding: Student's ability to respond when called on in a group setting
- Waiting for others individual responses: Student's ability to remain quiet and attentive when it is another student's individual turn to respond



Pre-Requisite Skills: Reading Mastery

- Echo sounds/words
- Imitate prosody...speed (fast and slow)
- Imitate prosody...duration (sustain a sound for about 3 seconds)
- Follow simple instructions
- Ideally, should have completed at least first 40 lessons of Language for learning or demonstrate equivalent skills



Pre-Requisite Skills: Language for Learning

- Echo words/phrases with accuracy
- Discriminate and Tact many items and actions
- Respond to simple yes/no questions
- Perform simple actions on command
- Describe objects (parts/features)
- Respond to name
- Basic prepositions



Pre-Requisite Skills: Connecting Math Concepts

- Echo words/phrases
- Respond to simple yes/no questions
- Respond to “Stop”
- Rote count
- Match-to-sample
- Replicate patterns/sequences
- Prepositions



What Do I Teach if he/she is Not Ready?

- Start with teaching attending response
 - “Show me ready”
 - Ready hands (hands folded on lap)
 - Seated in chair
 - Feet on floor
 - Body and eye gaze oriented toward teacher
- Teach directions - stand up, sit down, etc.
 - Teach first in imitation, then transfer to listener response
- Add to easies to card sort

Pre-Teaching Group Responding

- Teach responding to signals across the operants
 - Motor Imitation: “Do this”
 - LR: Following Directions
 - Tacts: “What is it?”
 - Textual: “What word?”
 - Reading story
 - Echoics: “Say _____”

Pre-Teaching Group Responding

- Begin running teaching sessions in different locations and with others
 - IT at desk
 - IT at table (dyads, triads)
 - IT within NET (away from table)
 - IT within group
 - Homogeneous grouping (same abilities)
 - Same mastered skills (e.g. Level 2 Learners)
- Teach responding to “name vs “everybody” and “name” vs “someone else’s name”
- Teach responding to “My Turn” vs “Your turn”

Review of Basic Teaching Procedures

Basic Teaching Procedures

- Preparation
- Signals
 - Reading Mastery
 - Language for Learning
 - Connecting Math Concepts
- Error Correction



Basic Teaching Procedures: Preparation

- Critical things teachers should do to prepare
 - Read over the script
 - Decide where to add **think time** and **get ready**
 - Where to add **pause** and **punch**
 - Where to **verify responses**
 - Where to add **overt responses**
 - Where to add **meaningful repetition**
 - Where to **modify** or **add examples**
 - Practice the sounds
 - Determine/practice the signals
 - Determine materials organization/placement

Pronunciation Guide

Symbol	Pronounced	As in	Voiced or Unvoiced*	Introduced in Lesson
a	aaa	<u>and</u>	v	1
m	mmm	<u>ram</u>	v	1
s	sss	<u>bus</u>	uv	3
ē	ēēē	<u>eat</u>	v	4
r	rrr	<u>bar</u>	v	6
d	d	<u>mad</u>	v	9
f	ff	<u>stuff</u>	uv	11
i	iii	<u>if</u>	v	13
th	ththth	<u>this</u> and <u>bathe</u> (not thing)	v	15
t	t	<u>cat</u>	uv	17
n	nnn	<u>pan</u>	v	19
c	c	<u>tack</u>	uv	21
o	ooo	<u>ox</u>	v	23
ā	āāā	<u>ate</u>	v	26
h	h	<u>hat</u>	uv	28
u	uuu	<u>under</u>	v	30
g	g	<u>tag</u>	v	33
l	lll	<u>pal</u>	v	35
w	www	<u>wow</u>	v	37
sh	shshsh	<u>wish</u>	uv	39

Symbol	Pronounced	As in	Voiced or Unvoiced	Introduced in Lesson
I	(the word I)		v	43
k	k	<u>tack</u>	uv	45
ō	ōōō	<u>over</u>	v	48
v	vvv	<u>love</u>	v	50
p	p	<u>sap</u>	uv	54
ch	ch	<u>touch</u>	uv	57
e	eee	<u>end</u>	v	59
b	b	<u>grab</u>	v	61
ing	iling	<u>sing</u>	v	62
I	iii	<u>ice</u>	v	64
y	yyy	<u>yard</u>	v	66
er	urr	<u>brother</u>	v	67
x	ksss	<u>ox</u>	uv	70
oo	oooooo	<u>moon</u> (not look)	v	71
J	j	<u>judge</u>	v	72
y	iii	<u>my</u>	v	75
wh	www or wh	<u>why</u>	v or uv	76
qu	kwww (or koo)	<u>quick</u>	v	77
z	zzz	<u>buzz</u>	v	78
ū	ūūū	<u>use</u>	v	80



Basic Teaching Procedures: Signals

- Control the timing of student responses
- Enables students to be actively engaged with instruction
- Allows teachers to monitor student responses and adjust instruction accordingly
- Allows for effective group responses
 - Group responses become less powerful and sometimes even counterproductive if not in unison
- 2 types of signals
 - Visual
 - Auditory

Basic Teaching Procedures:

Visual and Auditory Signals

- When student's eyes are on the teacher or materials that the teacher is holding

VISUAL

- When student's eyes are NOT on the teacher but instead they are looking at their book or worksheet

AUDITORY

✓ Skill Check I: Visual and Auditory Signals

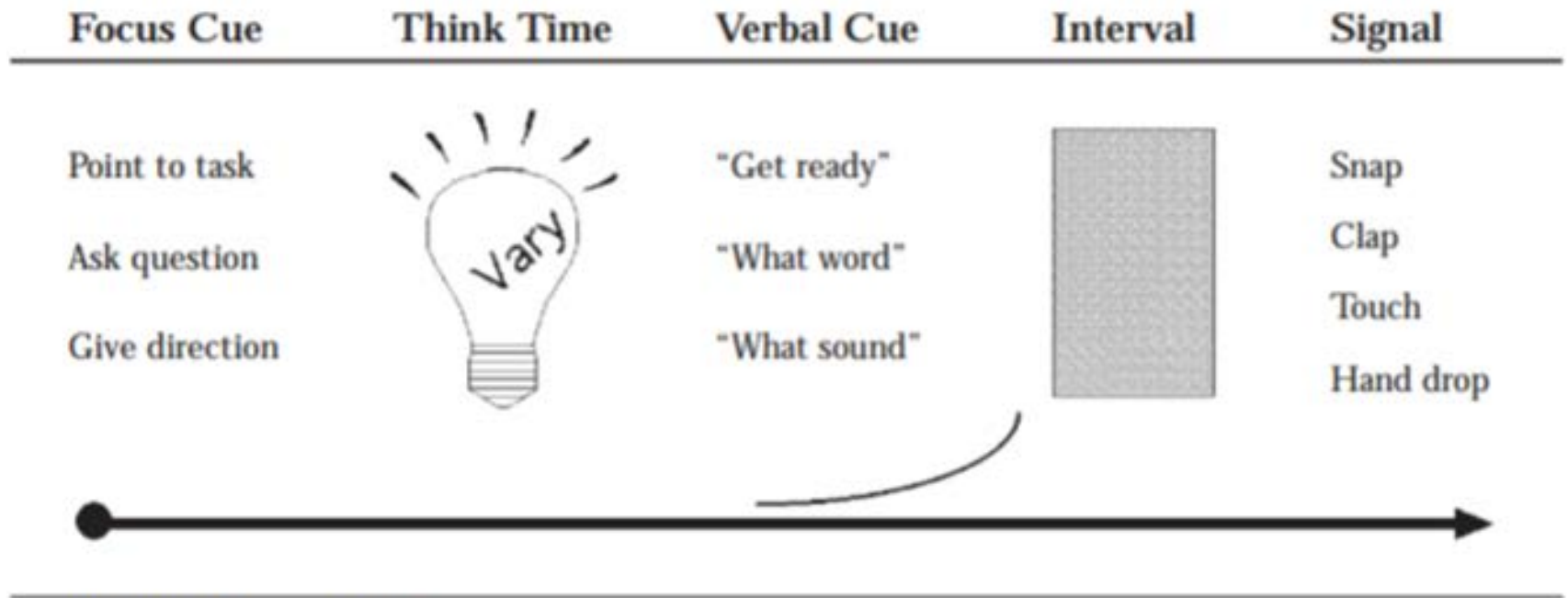
- Teacher says, “Everyone read the title of the story”
AUDITORY
- Teacher points to a picture and says, “The ladder is next to the tree. Where is the ladder?”
VISUAL
- Teacher says, “Say the seasons starting with summer”
VISUAL
- Teachers says, “Your turn to get 21 going and count”
AUDITORY



Basic Teaching Procedures: Signals

- 4 Basic Steps
 - Focus cue - to gain students' attention and present the task
 - Brief pause (about 1 second) - to allow think time
 - A verbal cue
 - A signal

Basic Teaching Procedures: Signals



Note. Illustrated by Tracey Hall.



Basic Teaching Procedures: Signals

- The signal indicates the student should respond
- Signals are used only at the precise moment when student should respond
- Instructor only talks during focus position
- Instructor never talks and moves...all talking occurs with instructor at focus point



Basic Teaching Procedures: Signals

Point and Touch Signal

- Look at the stimulus
- Point to the stimulus while making sure all students can see it (Focus Cue)
- Ask the question or give the instruction
- Hold your finger in the point position for one second (Think Time)
- “Get Ready” (Verbal Cue)
- Signal with a tap (Signal)

*video

Basic Teaching Procedures: Signals

Hand Drop Signal

- At the beginning of each step of the exercise, raise your hand (Focus Cue)
- Ask the question or give the instruction
- Pause for about one second (Think Time)
- “Get Ready” (Verbal Cue)
- Quickly drop your hand (Signal)

*video

✓ Skill Check 2: Point/Touch or Hand Drop

- **Listener Responding** Hand Drop
“Touch Your Head”
- **Tact** Point/Touch
“What is it?” car
“What do you hear?” knocking Hand Drop
- **Echoic** Hand Drop
“Say banana”

✓ Skill Check 3: Point and Touch

Frame	Teacher	<i>“This is a tree”</i>
Model	Teacher	<i>“My turn to say what this is. Tree”</i>
Lead	Teacher and Students	<i>“Say it with me, what is it? Tree”</i>
Test/Check	Students	<i>“By yourselves, what is it?”</i>
Verify	Teacher	<i>“Yes, tree”</i>



✓ Skill Check 4: Hand Drop Signal

Frame	Teacher	<i>“Everybody stand up. (signal)”</i>
Model	Teacher	<i>“My turn. What are you doing? Standing up”</i>
Lead	Teacher and Students	<i>“Say it with me. What are you doing? Standing up”</i>
Test/ Check	Students	<i>“All by yourselves, what are you doing?”</i>
Verify	Teacher	<i>“Yes, standing up”</i>

Basic Teaching Procedures: Signals

- Specific Reading Mastery Signals
 - o Loop
 - o Slash
 - o Hand Drop
 - o Pronunciation
 - o Clap-Tap
 - o Point/Touch

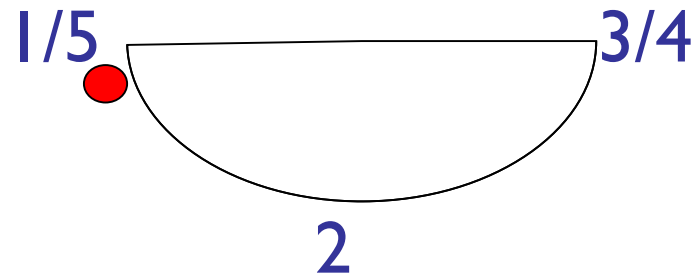


Reading Mastery Signals: Loop

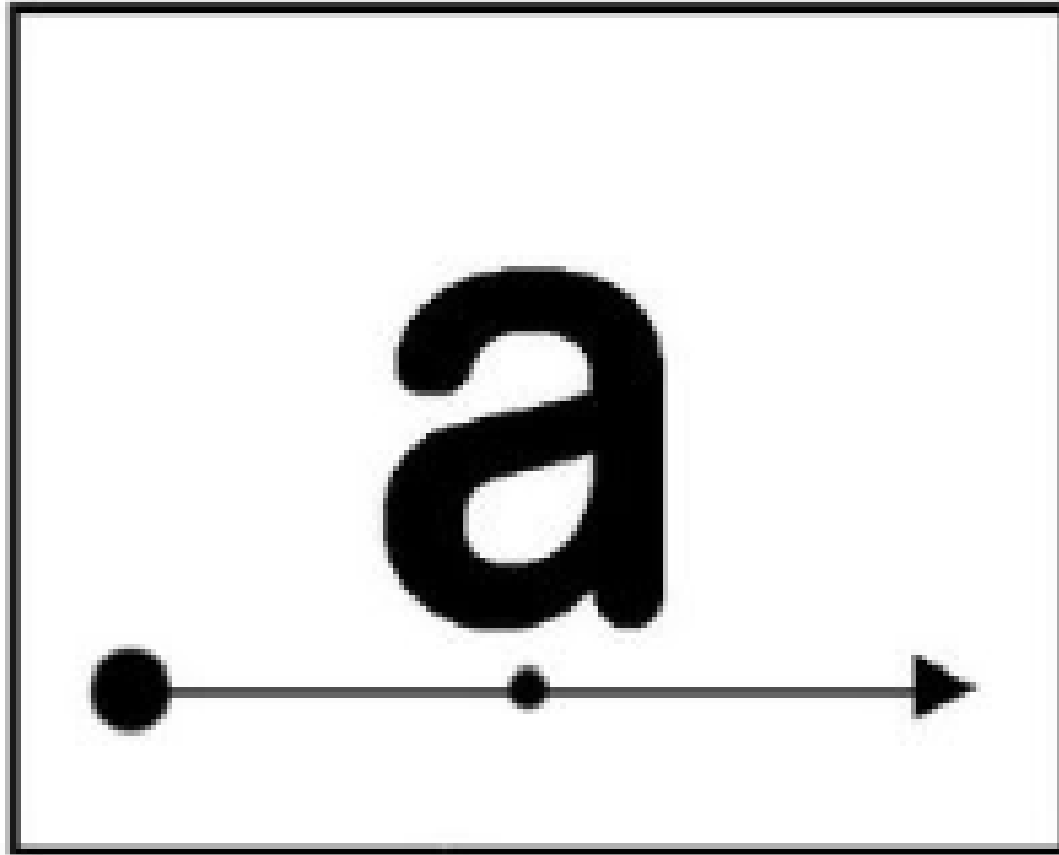
- Used for continuous sounds
 - Single sounds
 - Sounding out
 - Rhyming (1st part)

Continuous sound signal: loop

1. Focus
2. Preparation
3. Response
4. Release
5. Verify

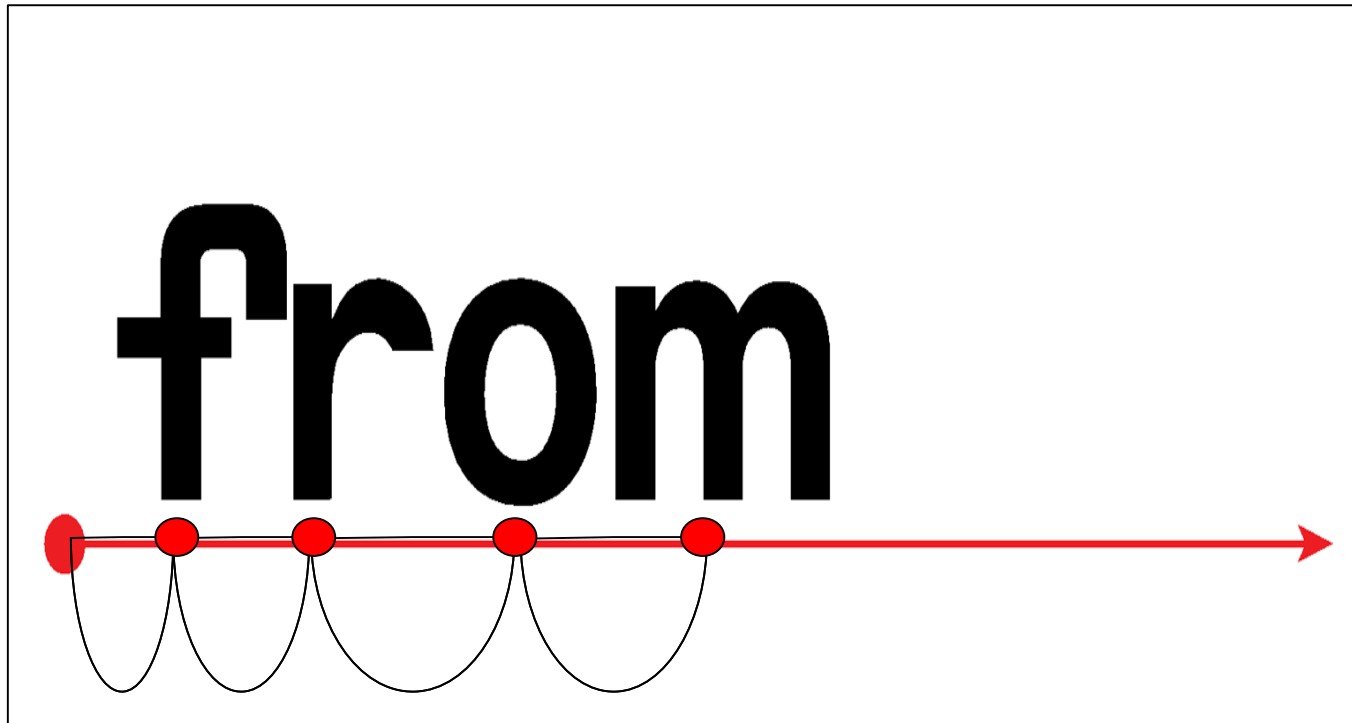


Reading Mastery Signals: Loop





Reading Mastery Signals: Loop



✓ Skill Check 5: Loop

m

man

Frame	Teacher	<i>“Let’s say some sounds”</i>	<i>“This is the word Man”</i>
Model	Teacher	<i>“My turn to say it. When I move under the sound, I’ll say it. I’ll keep saying it as long as I touch under it. Get Ready. /mmm/”</i>	<i>“My turn to sound out this word. Mmmaannn”</i>
Lead	Teacher and Students	<i>“Say it with me, /mmm/”</i>	<i>“Sound it out with me, mmmaaannn”</i>
Test/Check	Students	<i>“What sound?”</i>	<i>“All by yourselves, sound it out.”</i>
Verify	Teacher	<i>“Yes, /mmm/”</i>	<i>“Yes, mmmaaannn”</i>

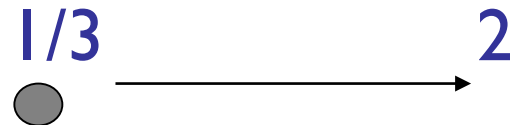


Reading Mastery Signals: Slash

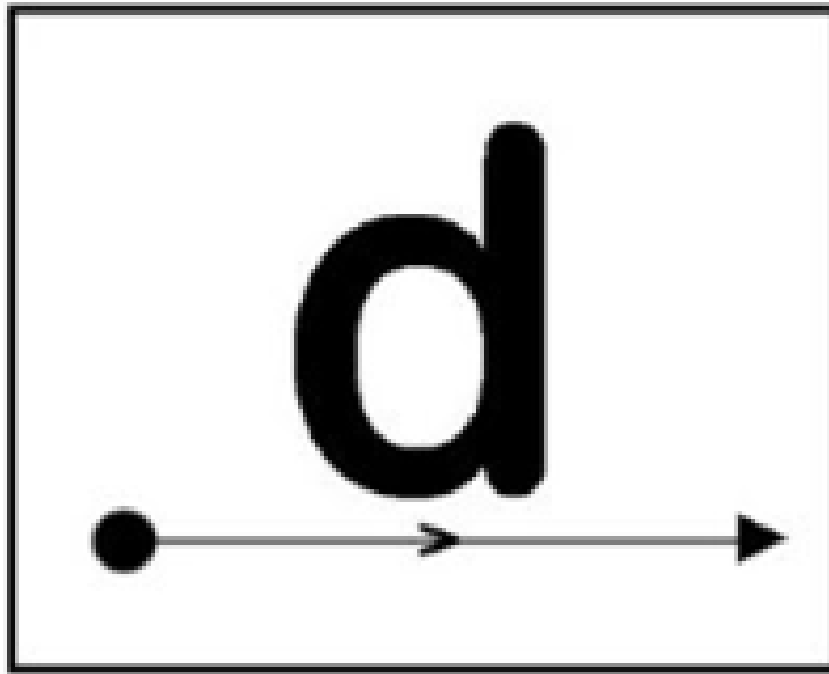
- Used for Stop sounds
 - Single sounds
 - Say it Fast (when reading words)
 - Sequencing (with pictures)
 - Rhyming (2nd step)

Stop sound signal: Slash

1. Focus
2. Response
3. Verify



Reading Mastery Signals: Slash





Reading Mastery Signals: Slash

from



✓ Skill Check 6: Slash

d

kite

Frame	Teacher	<i>“We always have to say this sound fast. The little arrow under the sound tells me that I can’t stop under this sound.”</i>	<i>“Read these words the fast way”</i>
Model	Teacher	<i>“My turn to say it fast, /d/”</i>	<i>“My turn to read this word the fast way. Kite.”</i>
Lead	Teacher and Students	<i>“Say it with me, /d/”</i>	<i>“Read it with me. Kite”</i>
Test/Check	Students	<i>“Your turn. Say it fast.”</i>	<i>“All by yourselves, read this word the fast way.</i>
Verify	Teacher	<i>“Yes, /d/”</i>	<i>“Yes, Kite”</i>



Reading Mastery Signals: Pronunciation

- Saying sounds
 - continuous sounds
 - stop sounds
- Blending sounds

Procedure:

- Hold up finger
 - 2 seconds for continuous sounds
 - Flash for stop sounds



Reading Mastery Signals: Pronunciation

m

d

Frame	Teacher	<i>“Let’s say some sounds”</i>	<i>“Let’s say some sounds”</i>
Model	Teacher	<i>“Listen to the sound. /mmm/”</i>	<i>“Listen to the sound. We always have to say this sound fast. My turn to say the sound /d/.”</i>
Lead	Teacher and Students	<i>“When I hold up my finger we’re going to say, /mmm/. Get ready. /mmm/.”</i>	<i>“When I hold up my finger we’re going to say /d/. Get ready. /d/.”</i>
Test/Check	Students	<i>“Your turn.”</i>	<i>“Your turn, /d/.”</i>
Verify	Teacher	<i>“Yes, /mmm/.”</i>	<i>“Yes, /d/.”</i>

Reading Mastery Signals: Auditory

- Used when students are looking at their own materials
 - o word lists
 - o stories
 - o skill exercises
- Examples of auditory signals
 - o clap
 - o tap table
 - o tap leg
 - o snap
 - o clicker

Reading Mastery Signals: Auditory

Frame	Teacher	<i>“Open your book to page 37 and get ready to read. We’re going to read this story the fast way”</i>
Model	Teacher	<i>“Touch the first word. ✓ Reading the fast way. First word. Get Ready. (Tap) The</i>
Lead	Teacher and Students	<i>“Read it with me the fast way. (Tap) The”</i>
Test/ Check	Students	<i>“Your turn. Reading the fast way. (Tap) The”</i>
Verify	Teacher	<i>“Yes, the.” “Next word. ✓”</i>



Reading Mastery Signals: Combining Signals

- Combining basic signals for more complex tasks
 - o **Rhyming**
 - Loop & Slash: for sounding out
Loop stopping for one second at ball then slash to arrow
 - Slash Quickly: for say it fast
 - o **Say the Sounds - Say it Fast**
 - Pronunciation/Hand Drop
 - o **Sound it Out**
 - Loop-Loop
 - o **Sound it Out - Say it Fast**
 - Loop-Loop/Slash



Language for Learning/Thinking Signals

- Specific Language for Learning and Language for Thinking Signals
 - Point/Touch
 - Hand-drop

Connecting Math Concepts/DISTAR Signals

- Specific Connecting Math Concepts and DISTAR Math Signals
 - o Point/Touch
 - o Hand-drop
 - o Auditory signals (e.g. pencil tap, finger snap, or claps)

Basic Teaching Procedures: Error Correction

- When an error occurs, corrections are **immediate** and **direct**
- During group responses, individual student errors should never be singled out
 - all students can benefit from additional practice
- During individual responses, corrections are directed to the student who responded
- Following any error, evaluate your teaching practices (VR, prompt procedures)
- Correction procedures are spelled out in the presentation book under the specific exercise

Basic Teaching Procedures: Error Correction

- Basic Error Correction Format:
 - o Model
 - o Test
 - o Re-test

Basic Teaching Procedures: Error Correction

Step	Teacher says	Student says
Model Clear communication of what students should do.	This word is "eventually."	
Test Opportunity for students to perform skill correctly.	What word is this?	eventually
Retest Teacher intersperses several other items before retesting "eventually." Gives students opportunity to perform skill independently.	What word is this? (treatments) What word is this? (submarine) What word is this? (eventually)	treatments submarine eventually



Error Correction: Types of Errors

1. Specific Statement Errors
 - o wrong response
2. Student not attending to the materials or instructor
3. Student fails to answer when the signal is given
4. Student responds at the wrong time (before the signal, too long after the signal, when another student was called on)
5. Inappropriate Responses
6. Alternate Responses



Basic Teaching Procedures: Error Correction

- Specific Statement Corrections
 - Incorrect response
 - Vary depending on the specific response errors
 - Correction procedures are presented in the teacher's presentation book under the exercise for which they apply



Basic Teaching Procedures: Error Correction

- Specific Statement Corrections
 - All statement corrections start with “My turn” and end with “starting over”

Error Correction Template:

- Model: “My turn”
- Lead: “Say it with me”
- Test: “Your turn by yourself”
- Verify: “Yes, _____”
- “Starting Over”: Start at beginning of task

Basic Teaching Procedures: Error Correction

- If the student is not attending to materials or instructor
 - Teacher corrects by saying, “*Let’s try again*”, and returns to beginning of task
 - Add additional verbal cue - “*Keep your place*”, “*Eyes on me*”, “*Get ready*”
 - Signal/call individual student’s name
 - Turn individual responses into group responses

Basic Teaching Procedures: Error Correction

- If a student fails to answer when the signal is given
 - *“I have to hear everybody”*
 - *“You have to answer when I give the signal”*

Basic Teaching Procedures: Error Correction

- If the student responds at the wrong time
 - Before the signal
 - *“You have to wait until I signal. Let’s try it again.”*
 - Too long after the signal
 - *“I need everybody to respond on my signal”*
 - *“You have to answer as soon as I signal”*
 - When another student was called on
 - *“It’s Lori’s turn”*

Basic Teaching Procedures: Error Correction

- Correct but inappropriate responding
 - Teacher immediately stops the students and follows this sequence:
 - Models an acceptable way of responding
“I can say that sentence the nice way. Listen. I am touching my head.”
 - Leads students through response
“Let’s all say that sentence the nice way”
 - Tests students
“Let’s hear you say that sentence the nice way all by yourselves”



Basic Teaching Procedures: Error Correction

- Correcting an alternate response
 - Used when student responds with correct but alternative response (different from response on presentation book)
 - Teacher indicates response is correct by saying, *“right, some people call this _____, but it is also called a _____. Let’s use _____”*
- This is important for consistency across students and on future lessons.



✓ Skill Check 7: Error Correction

Error Correction Template:

- Model: “My turn”
- Lead: “Say it with me”
- Test: “Your turn by yourself”
- Verify: “Yes, _____”
- “Starting Over”: Start at beginning of task

Basic Teaching Procedures: Wall Cues

Signal Violations

- * Watch my finger. Get Ready.
- * Now, let's try it again.

Nonattending

- * Watch my finger
- * Let's try it again.

Error on saying whole statement

① Stop. My turn. Listen. What are you doing? Touching my head.

② You're turn. What are you doing? (Signal) Students say: Touching my head.

③ Now say the whole thing. (Signal) Students respond: I am touching my head.

Signal Violations

- * You're early
- * You're late
- * You didn't say it when I touched it
- * I stopped touching it but you touched it

Pronoun Errors

"When I ask about you, you say 'I'."

Was/Is Errors

- ① Yes this glass was full.
- ② This glass is not full now, but it was full.
- ③ Let's do it again:

Error - Preposition

- ① Give correct answer.
- ② Repeat question
- ③ Return to the exercise.

Praise

- * You are really learning to say those sounds. I like it when you watch my mouth.

Nonresponding

- * I have to hear everybody.

Error "not"

- ① Listen. Not a dog. Say it with me.
- ② This is... not a dog.
- ③ Say the whole thing. This is not a dog.

Error on saying the whole thing with a picture

① Let's say the whole thing (sig + res w/ students) Look at a dog.

② Again (sig + say This is... (Signal))

③ Again (sig + say This... again!)

Error on saying the whole thing with a picture

① Stop. My turn. What is this? (Signal) A ball.

② Your turn. What is this? (Touch) Students say: Ball.

③ Now say the whole thing. (Signal) Students say: This is a ball.

Error - RULES

- ① What's the rule about vehicles?
- ② Does a (item) (rule) ?
- ③ So is it a _____?
- ④ So you should have said _____

Was/Is errors

- ① The pencil is over the cup. I asked where was the pencil.
- ② Let's do it again.

Error - Names

① You're right. It is a (object). But it is also food.

OR

But it is not food.

Sample Format

Model	Teacher	"This letter makes the sound /m/."	"My turn to sound out this word. Mammaaannn"
Lead	Teacher and Students	"Say it with me. /m/nnnn"	"Sound it out with me. mammaaannn"
Test	Students	"What sound?"	"All by yourselves, sound it out."
Verify	Teacher	"Yes, /m/nnnn"	"Yes, mammaaannn"

Reading Mastery Signals

- Saying Sounds:**
 - Hold up fingers: slow sounds
 - Hand Drop: Say it fast
- Sound out:**
 - Loop-Loop
- Rhyming Signals:**
 - Loop stopping for one second at ball then slash to arrow (loop & slash): for sounding out
 - Slash quickly: For say it fast

Word Misidentification
When Reading a Word the Fast Way

1. What's the first sound?
2. Repeat above for all sounds in the word
3. Sound it out. Get Ready. Again. (Start Over)
4. What word? Yes ____, Starting over.

Error on loop or picture

1. My turn, that sound/picture is...
2. say it with me.
3. Your turn, what sound/what is it?
4. Starting over

LEARNING PARADIGM

MODEL "My turn" (TEACHER)

LEAD "do it with me. Get ready" (TEACHER and STUDENT)

TEST "your turn. Get ready" (STUDENT)

RE-TEST "starting over" (STUDENT)

Reading Mastery Signals

- Continuous sound signal: loop**
- 1. Focus
- 2. Preparation
- 3. Response
- 4. Release
- 5. Verify

IRREGULAR WORD

1. Here's a FUNNY word, sound it out the FUNNY way. Get ready....
2. That's how we SOUND OUT the word, but how do we say the word?.... Get ready. Yes _____

Reading Mastery Signals

Data Collection Procedures

Data Collection Procedures

- Placement within DI Curricula
- Monitoring Progress
- Data-Based Decision Making (DBDM)
- Fidelity of Implementation- Treatment Integrity



Data Collection Procedures: Placement within DI Curriculum

- How do I know which lesson to start at?
 - Placement Test: confound
 - Mastery Tests *
 - as an alternative to the Placement Test to determine where student's skill start to deteriorate
- Guidelines for grouping students
 - Place children with similar scores together
 - higher scores can be moved DOWN if not too discrepant
 - Regroup children based on daily performance
 - Consider grouping across classrooms

Data Collection Procedures: Monitoring Progress

- Assessments
 - DI programs are designed to give teachers a complete, self contained system for monitoring student performance
 - They include curriculum-based Mastery Tests
 - These tests, which are given to students either individually or in groups after specified lessons have been completed, measure specific skills or concepts that have been taught during preceding lessons

Data Collection Procedures

- Graph lessons mastered
- Consider graphing mastery tests in a different color
- Track lessons introduced and mastered when students do not require all lessons (when skipping lessons)
- If you need more detailed data, consider using a detailed response data sheet for each task

Example of Data Collection

Student:

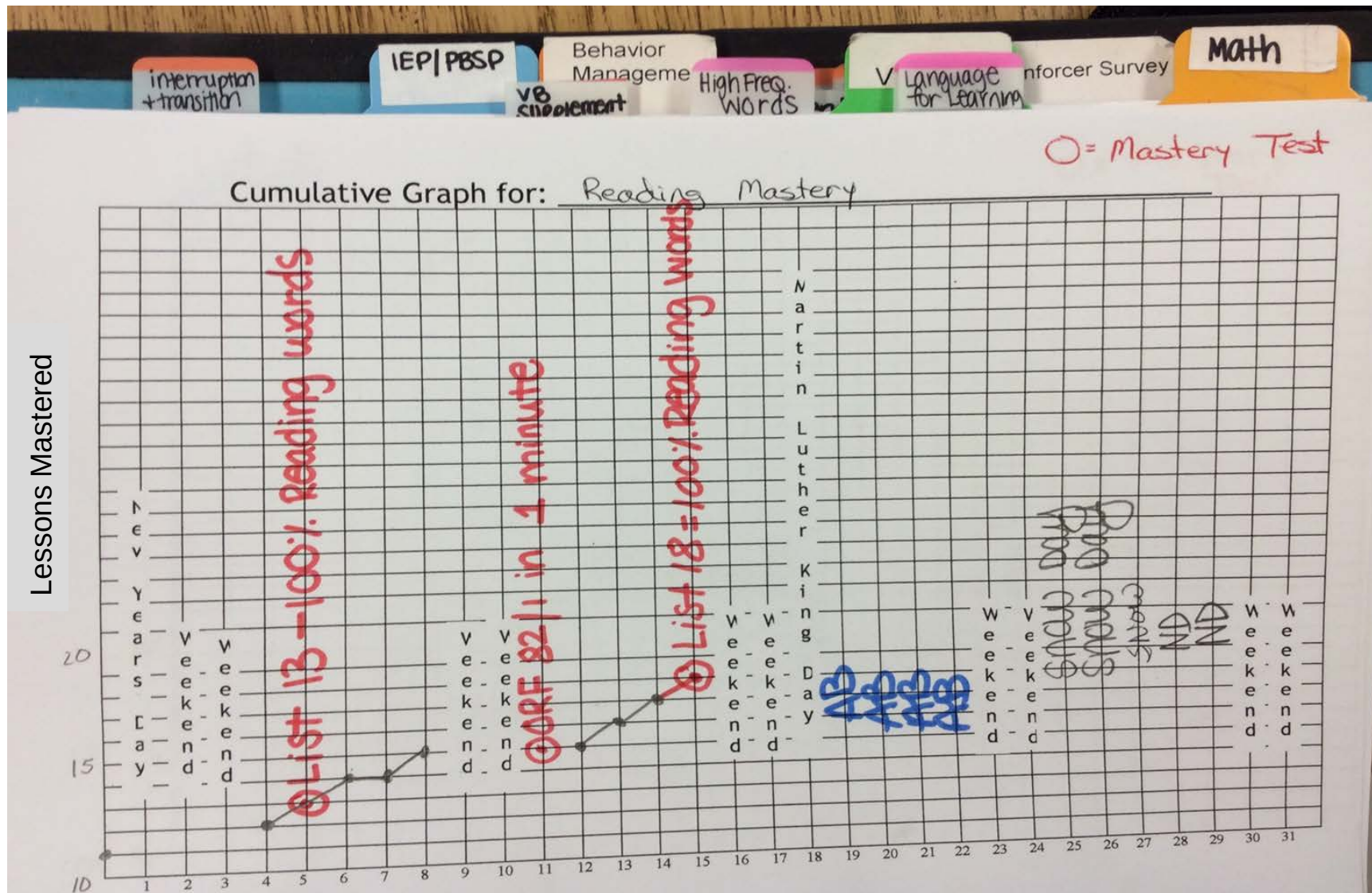


Teacher:

Reading Mastery Tracking Sheet

Mastery Test # (List lessons included)	Date Mastered	Mastery Test # (List lessons included)	Date Mastered
1: Lessons 1-8		16: Lessons 81-85	
2: Lessons 9-15		17: Lessons 86-90	
3: Lessons 16-20		18: Lessons 91-95	
4: Lessons 21-25		19: Lessons 96-100	
5: Lessons 26-30		20: Lessons 101-105	
6: Lessons 31-35		21: Lessons 106-110	
7: Lessons 36-40		22: Lessons 111-115	
8: Lessons 41-45		23: Lessons 116-120	
9: Lessons 46-50		24: Lessons 121-125	
10: Lessons 51-55		25: Lessons 126-130	
11: Lessons 56-60		26: Lessons 131-135	
12: Lessons 61-65		27: Lessons 136-140	
13: Lessons 66-70		28: Lessons 141-145	
14: Lessons 71-75		29: Lessons 146-150	
15: Lessons 76-80		30: Lessons 150-155	

Example of Data Collection



Treatment Integrity: Direct Instruction

		YES	NO	N/A
Organization	1. Is the instructional area neat and clean?			
	2. Are all teaching materials organized and ready?			
	3. Have all placement tests been conducted?			
	4. Did instructor practice the lesson prior to teaching?			
Teaching the Lesson	5. Does instructor start the lesson immediately?			
	6. Does instructor follow the script?			
	7. Does the instructor use clear signals?			
	8. Does the instructor reinforce throughout the lesson?			
	9. Does the instructor keep a good pace?			
	10. Does the instructor speak clearly and with expression?			
	11. Does the instructor maintain instructional control?			
	12. Does instructor ensure ALL students are responding correctly on signal?			
Error Correction	13. Is the book at the child's eye level?			
	14. Does the instructor correct error(s) immediately?			
	15. Does the instructor model?			
	16. Does the instructor lead?			
	17. Does the instructor test?			
	18. Does the instructor verify?			
	19. Does instructor start at beginning of task following error correction?			
	20. Does the instructor provide extra practice (if needed) to firm up response(s)?			
Data	21. Does the instructor conduct mastery tests?			
	22. Does the instructor graph the data?			
Notes:		/ 22		
		Percentage of Y's:		

Treatment Integrity: Group Instruction

		YES	NO	N/A
Student Behavior	1. Are students sitting quietly and appropriately with eyes and body oriented toward the group leader?			
	2. Are students actively engaged and frequently responding?			
	3. Are students attending to, following, and participating in group instruction with the appropriate amount of prompting?			
	4. Are students positioned in a semi-circle facing the teacher and with a non-distracting area behind the teacher?			
	5. Are lower performing students positioned in the center of the semi-circle?			
Staff Behavior	6. Is staff standing or sitting behind the student(s) assigned to them?			
	7. Does staff reinforce appropriate behavior while being as unobtrusive as possible?			
	8. Is staff using prompts to help student(s) remain on task?			
	9. Does staff implement behavioral interventions as quietly and unobtrusively as possible and allowing the group leader to continue to lead?			
	10. Does staff always remain focused on their student(s)?			
	11. Does staff refrain from participating in group unless directed by the group leader?			
	12. For motor skills, does staff prompt the learner from behind to ensure that the learner is maintaining proper positioning and fade physical prompts as mastery is achieved?			
Group Leader Behavior	13. Does staff attend to even mild problem behavior such as looking away, automatic reinforcement behaviors (rocking, fidgeting with clothing, leaning out of the seat, day dreaming, non-responses, etc....)?			
	14. Does the group leader always present the SP (instruction, directions, etc.)?			
	15. Does the instructor provide opportunities for group/choral responses (using a cue)?			
	16. Has the group leader identified easy targets that all students can respond to so that many responses involve SP's indicative of students responding together ("everyone touch your head")?			
	17. Does the group leader reinforce students on their set VR for behaviors during group activities?			
	18. Does reinforcement always come from the group leader?			
	19. Has the group leader established clear targets for each student?			
	20. For a skill that has not been mastered, does instructor use errorless procedures?			
	21. If a student errors, does instructor run error correction procedures?			
Data	22. Is the group instruction "topic" relevant and at the appropriate instructional level?			
	23. Is data recorded as necessary?			
	24. Is the time allotted from group appropriate for the age and assessment performance levels of the students in the group?			
	25. Is there general engagement (75% or higher across the group and with each individual student)?			
Notes:		/ 25 Percentage of Y's:		

The philosophy behind the program is basically simple. We say in effect, “Kid, it doesn’t matter how miserably your environment has failed to teach you the basic concepts that the average five-year-old has long since mastered. **We’re not going to fail you.** We’re not going to discriminate against you, or give up on you, regardless of how unready you may be according to traditional standards. We are not going to label you with a handle, such as dyslexic or brain-damaged, and feel that we have now exonerated ourselves from the responsibility of teaching you. We’re not going to punish you by requiring you to do things you can’t do. We’re not going to talk about your difficulties to learn.

We will take you where you are, and we’ll teach you.

The extent to which you fail is our failure, not yours. We will not cop out by saying, “He can’t learn.” Rather, we will say, “I failed to teach him. So I better **take a good look at what I did and try to figure out a better way.**”

DI Video Examples

Reading Mastery Video Series (this one specifically is regarding signals)

<https://www.youtube.com/watch?v=num-ZanEz7I>

Reading Mastery Sample Lesson

<https://s3.amazonaws.com/ecommerce-prod.mheducation.com/unitas/school/program/reading-mastery-signature-edition-2008/sample-lessons/rmse-sample-lesson-reading-gl-l76.pdf>

Reading Mastery Sample Lesson

<https://s3.amazonaws.com/ecommerce-prod.mheducation.com/unitas/school/program/reading-mastery-signature-edition-2008/sample-lessons/rmse-sample-lesson-reading-gk-l108.pdf>

Language for Learning Sample Lesson

<https://s3.amazonaws.com/ecommerce-prod.mheducation.com/unitas/school/program/reading-mastery-signature-edition-2008/sample-lessons/rmse-sample-lesson-la-gk-l75.pdf>

Your Training video series

<https://www.nifdi.org/resources/videos/reading-mastery-training-series>

References

The Components of Direct Instruction CATHY L. WATKINS, California State University, Stanislaus and TIMOTHY A. SLOCUM, Utah State University <https://www.nifdi.org/research/journal-of-di/volume-3-no-2-summer-2003/449-the-components-of-direct-instruction/file>

Adams, G. L., & Engelmann, S. (1996). *Research on Direct Instruction: 25 years beyond DISTAR*. Seattle, WA: Educational Achievement Systems.

American Federation of Teachers. (1999). *Building on the Best, Learning from What Works: Five Promising Remedial Reading Intervention Programs*. Washington, DC

Becker, W.C. (1971). *Parents as Teachers*. Champaign, IL: Research Press.

Brophy, J., & Good, T. (1986). Teacher behavior and student achievement: *Third handbook of research on teaching* (pp. 328-375). New York: Macmillan.

Carnine, D. (1991). Curricular interventions for teaching higher order thinking to all students: Introduction to the special series. *Journal of Learning Disabilities*, 24, 261-269.

Darch, C., & Simpson, R. G. (1990). Effectiveness of visual imagery versus rule-based strategies in teaching spelling to learning disabled students. *Research in Rural Education*, 7 (1), 61-70.

Duran, E. (1982). Hispanic children can be taught: Or which teaching method is most effective. *Teaching and Learning Review*, 2, 4-6.

Engelmann, S. (1999). *Student-program alignment and teaching to mastery*. Paper presented at the 25th annual National Direct Instruction Conference, Eugene, OR.

Engelmann, S. (2007). *Teaching needy kids in our backward system: 42 years of trying*. Eugene, OR: ADI Press.

Engelmann, S., & Carnine, D. (1982). *Theory of Instruction: Principals and Applications*. New York: Irvington.

References

- Flores, M. M., & Ganz, J. B. (2007). Effectiveness of direct instruction for teaching statement inference, use of facts, and analogies to students with developmental disabilities and related delays. *Focus on Autism and Other Developmental Disabilities*, 22, 244-251.
- Ganz, J.B., & Flores, M.M. (2009). The effectiveness of Direct Instruction for teaching language to children with Autism Spectrum Disorders: Identifying materials. *Journal of Autism and Developmental Disorders*, 39, 75-83.
- Heward, W.L. (2013). Quality Educational Practices: Students with Higher Functioning Levels of Autism Spectrum Disorders: Session 2 [Webinar]. Retrieved from https://http://www.pattan.net/Videos/Browse/Single/?code_name=quality_educational_practices_students
- Heward, W. L. (2000). What is Direct Instruction? In W. L. Heward, *Exceptional Children: An Introduction to Special Education* (6th ed.) (pp. 272-273). Upper Saddle River, NJ: Merrill/Prentice Hall
- Marchand-Martella, N.E., Slocum, T.A., & Martella, R.C. (2004). *Introduction to Direct Instruction*. Pearson Education Inc.
- Martella, R.C., & Nelson, J.R. (2003). Managing Classroom Behavior. *Journal of Direct Instruction*, Vol. 3, No. 2, pp. 139–165.
- McKenzie, M. A., Marchand-Martella, N. E., Moore, M. E., & Martella, R. C. (2004). Teaching basic math skills to preschoolers using connecting math concepts level k. *Journal of Direct Instruction*, 4, 85-94.
- Riepl, J., Marchand-Martella, N., & Martella, R. (2008). The effects of Reading Mastery Plus on the beginning reading skills of students with intellectual and developmental disabilities. *Journal of Direct Instruction*, 8, 29-39.

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