Missouri's Dyslexia Law: Matching Practice to Law and Research

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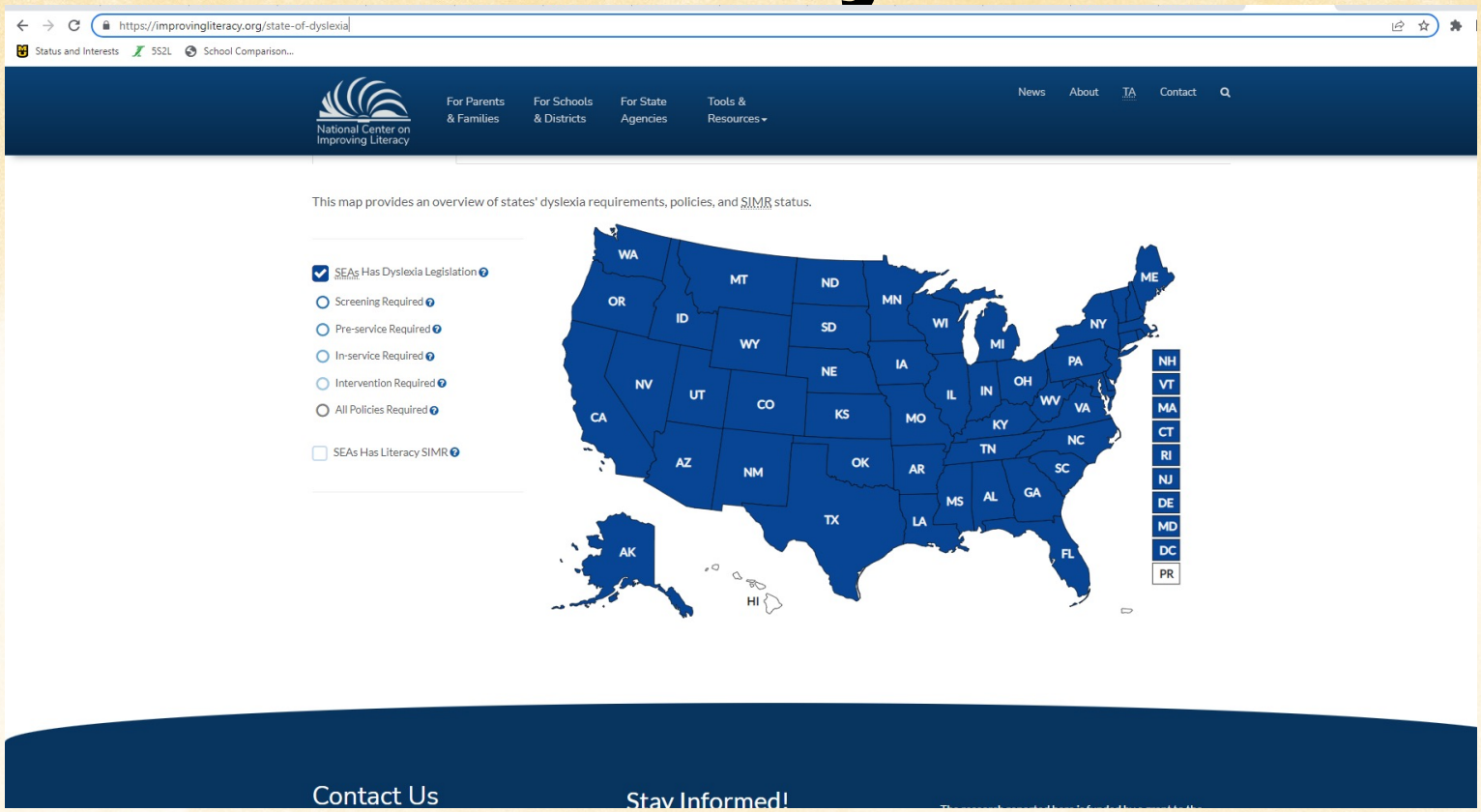
States with a Dyslexia Law



https://improvingliteracy.org/state-of-dyslexia

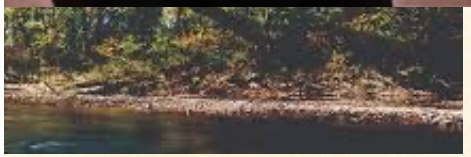
Missouri Dyslexia Law

SB 638/HB 2379

- Each public school, including each charter school, shall conduct dyslexia screenings for students in the appropriate year.
  - Grades 1-3 should be screened within the first 30 days of the school year
  - Kindergarten initial screening should occur no later than January 31st
- Each school and charter school shall provide reasonable classroom support.

https://dese.mo.gov/media/pdf/curr-dyslexia-serving-students-at-risk-lea-guidance

Pictures of the State of Missouri



What is Dyslexia?

"Dyslexia is a specific learning disability that is neurobiological in origin.

It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities.

These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction.

Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge."

Adopted by the IDA Board of Directors, Nov. 12, 2002.

Early Warning Signs - Myths

Preschool

- May talk later than most children
- May have difficulty pronouncing words, i.e., *busgetti* for *spaghetti*, *mawn lower* for *lawn mower*
- May be unable to recall the right word
- May have trouble interacting with peers
- May be unable to follow multi-step directions or routines
- Fine motor skills may develop more slowly than in other children

Early Warning Signs - Myths

Early Elementary

- Letter reversals – *d* for *b* as in, *dog* for *bog*
- Word reversals – *tip* for *pit*
- Inversions – *m* and *w*, *u* and *n*
- Transpositions – *felt* and *left*
- Substitutions – *house* and *home*
- May transpose number sequences and confuse arithmetic signs (+ - x / =)
- May be impulsive and prone to accidents
- May have difficulty planning
- Often uses an awkward pencil grip (fist, thumb hooked over fingers, etc.)
- May have trouble learning to tell time
- May have poor fine motor coordination

Early Warning Signs

May be slow to add new vocabulary words

May have difficulty with rhyming

May have trouble learning the alphabet, numbers, days of the week, colors, shapes, how to spell and write his or her name

May have difficulty telling and/or retelling a story in the correct sequence

Often has difficulty separating sounds in words and blending sounds to make words

Seems to be unable to recognize letters in his/her own name

Has difficulty decoding single words (reading single words in isolation)

May be slow to learn the connection between letters and sounds

A family history of reading and/or spelling difficulties

DSM – 5 (APA)

Specific Learning Disorder – Reading, not dyslexia.

a. Difficulty in at least one of the following areas that has persisted for at least 6 months despite the provision of extra help or targeted instruction – (a) inaccurate and slow reading, (b) understanding meaning of what is read, (c) spelling, (d) written expression (grammar, punctuation or organization), (e) understanding number concepts, facts, or calculation, and (f) mathematical reasoning.

b. The affected academic skills are substantially and quantifiably below those expected for age and cause impairment in academic, occupational, or everyday activities

c. Onset during the school-age years, although may not fully manifest until young adulthood in some individuals

d. Intellectual Disabilities, uncorrected auditory or visual acuity problems, other mental or neurological disorders or adverse conditions (psychosocial adversity, lack of proficiency in the language of instruction, inadequate instruction) must be ruled out before a diagnosis of SLD can be confirmed.

Dyslexia

In 1880s it was Word Blindness

- Believed to be visual

Term first used in 1930 by physicians

- “dys” bad or difficult
- “lexia” language

SLD Definition

Kirk (1963) – LDA inaugural meeting in Chicago

PL 94-142 (1975), PL 105-17 (IDEA 97), and PL 108-466

- Specific Learning Disability (SLD) – a disorder in one or more of the basic psychological processes involved in language
- Imperfect ability to listen think, speak, read, write, spell, or do mathematic calculations
- Includes perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia
- Does not include learning problems due to visual, hearing, or motor handicaps, mental retardation, emotional disturbance, or environmental, cultural, or economic disadvantage.

Illinois Test of Psycholinguistic Ability (ITPA)

Kirk, McCarthy, & Kirk (1968)

Based Information Processing

Uses

- Assess LD and develop interventions
- Train the deficit area
- Utilize areas of strength
- Use multisensory presentations more appropriately
- Remediate prerequisite deficits

Criticism of ITPA

- Low reliability
- Inadequate validity
- Significant cultural bias (Kaplan & Saccuzzo, 2001)
- Hammill & Larsen (1974)
  - Reviewed 39 studies
  - 54% to 75% were negative
  - No instructional relevance

1975 to 1977

PASSAGE OF IDEA

REGULATIONS CAME OUT IN 1977

MOST COMMON APPROACH TO

CLINICAL JUDGMENT

The Great Compromise

A severe discrepancy between the student's apparent potential for learning and his or her low level of achievement.

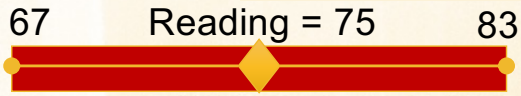
- Below average for age
- Below expected levels based on ability

One or more areas

- Oral Expression
- Listening Comprehension
- Written Expression
- Basic Reading Skills
- Reading Comprehension
- Mathematics Calculation
- Mathematics Reasoning

SLD Identification

Lisa



Bart

Screening

Four Purposes of Assessment

Program evaluation: How is the education system working for students overall?

- MAP

Screening: Which of my students are not meeting grade level expectations given Universal Instruction?

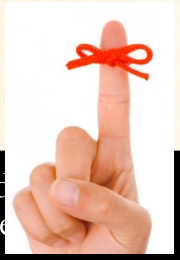
- E.g., STAR, NWEA

Diagnostic: What are the specific needs of students who struggle?

E.g., measures of specific skills

Monitoring Progress: What does the student's growth look like?

E.g., CBM (Aimsweb, Acadience, Dibels, FastBridge)

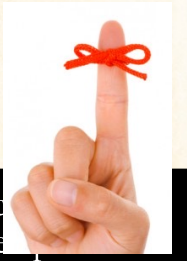


Screener	MAP < 25th %ile	MAP ≥ 25th %ile	Total
Oral Reading Fluency (ORF)			
ORF < Benchmark Goal	276	145	421
	a	b	
ORF ≥ Benchmark Goal	46	501	547
	c	d	
Total	322	646	968
Informal Reading Inventory (RI)			
RI < Benchmark Goal	90	189	279
	a	b	
RI ≥ Benchmark Goal	200	367	567
	c	d	
Total	290	556	846

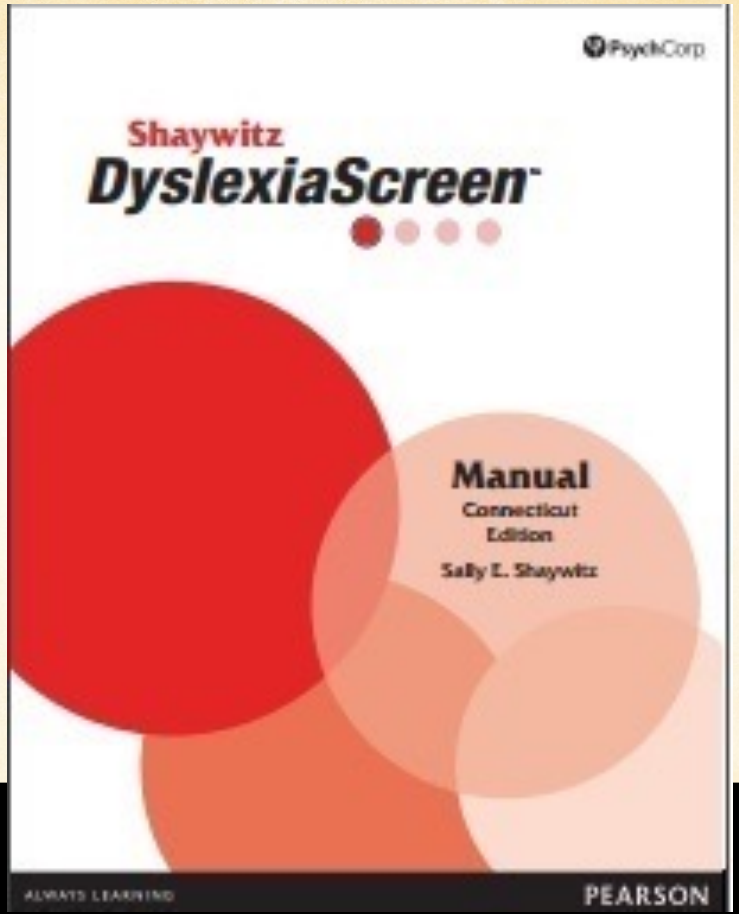
Sensitivity = a / (a + c)
.86 for CBMF
.31 for F&P

Specificity = d / (b + d)
.78 for ORF
.66 for F&P,

Correct Classification = (a + d) / N
.80 for ORF
.54 for F&P



Shaywitz DyslexiaScreen



Variable		n	%
Grade	Kindergarten	23	20.0
	First	22	19.1
	Second	29	25.2
	Third	41	35.7
Race or Ethnicity	African-American	12	10.4
	Asian	3	2.6
	Hispanic	8	7.0
	White	89	77.4
	Other/Multi	3	2.6
Gender	Female	61	53.0
	Male	54	47.0

Diagnostic Accuracy of Shaywitz DyslexiaScreen to Predict Low Phonological Awareness

		Phonological Awareness*	
		At-Risk	Not At-Risk
Shaywitz DyslexiaScreen	At-Risk	18 a	21 b
	Not At-Risk	33 c	27 d

* As measured by the Comprehensive Test of Phonological Processing (2nd ed.).
Note. Sensitivity = a / (a + c) = .35, Specificity = d / (b + d) = .44, Positive Predictive Power = a / (a + b) = .46, Negative Predictive Power = d / (c + d) = .55, Overall Correct Classification = (a + d) / n = .45.

Diagnostic Accuracy of DIBELS Composite to Predict Low Phonological Awareness

		Phonological Awareness*	
		At-Risk	Not At-Risk
DIBELS Composite	At-Risk	46 a	17 b
	Not At-Risk	5 c	33 d

* As measured by the Comprehensive Test of Phonological Processing (2nd ed.).
Note. Sensitivity = a / (a + c) = .90, Specificity = d / (b + d) = .66, Positive Predictive Power = a / (a + b) = .73, Negative Predictive Power = d / (c + d) = .87, Overall Correct Classification = (a + d) / n = .78.

A Word About RAN

Variable	*N*	*n*	*r*
Outcome			
Reading Accuracy	79	12,239	.42
Reading Fluency	55	15,710	.49
Stimulus			
Letters	55	13,124	.51
Numbers	60	12,622	.48
Pictures	32	8,409	.35
Colors	25	2,402	.33

Araújo, S., Reis, A., Petersson, K. M., & Faísca, L. (2015). Rapid automatized naming and reading performance: A meta-analysis. *Journal of Educational Psychology, 107*(3), 868–883. https://doi.org/10.1037/edu0000006

Dyslexia Guidelines

Skill	Measure
Phonological awareness	Initial (First) Sound Fluency Phoneme Segmentation Fluency
RAN	LNF
Nonsense Word	NWF (Word Attack), LSF
Letter-Sound/Sound Symbol	Letter Sound Fluency
Fluency	Oral reading fluency

Screening Process

Screen with PA (FSF, PSF, PAI) and LNF for kindergarten

Screen with decoding for first grade (NWF)

- Low, look at PA and LNF

Screen with CBM-R for 2nd – 5th

- Low accuracy (93% 1st – 3rd, 95% 4th and 5th) = low decoding
- Assess NWF or WA for kids who score low

Screen with comprehension for MS and HS

- (use CBM-R or decoding if low)

What About Spelling

Spelling = decoding

Terrible screener

- Kids with low decoding are poor spellers, BUT
- Bunch of kids who are poor spellers who decode fine

Good diagnostic

WTW (already have it then use it)

Step 1 – Get a Good Reading Screener

Reliable

Quick

Easy to use

Informs instruction

Preferably cheap!

Step 2 – Consider Classroom

The hallmark of dyslexia is not poor reading performance

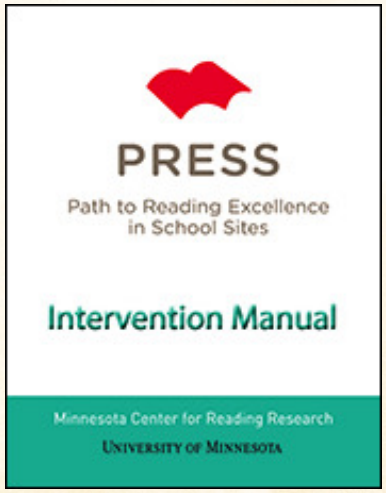
It is poor reading performance in the face of effective reading instruction.

Most children who struggle to learn to read do not have dyslexia

Poor reading performance should signal the need for screening.

PRESS

http://www.cehd.umn.edu/reading/PRESS/default.html



PRESS

Path to Reading Excellence in School Sites

Fall	70
Winter	91
Spring	109

	WRC
Student 1	48
Student 2	122
Student 3	126
Student 4	82
Student 5	102
Student 6	77
Student 7	51
Student 8	84
Student 9	80
Student 10	102
Student 11	83
Student 12	38
Student 13	104
Student 14	152
Student 15	143
Student 16	115
Student 17	142
Student 18	114
Student 19	13
Student 20	75
Student 21	141
Student 22	87
Student 23	49
Median	87

Kindergarten Winter* LSF

Criterion = 20
Sounds per
minute

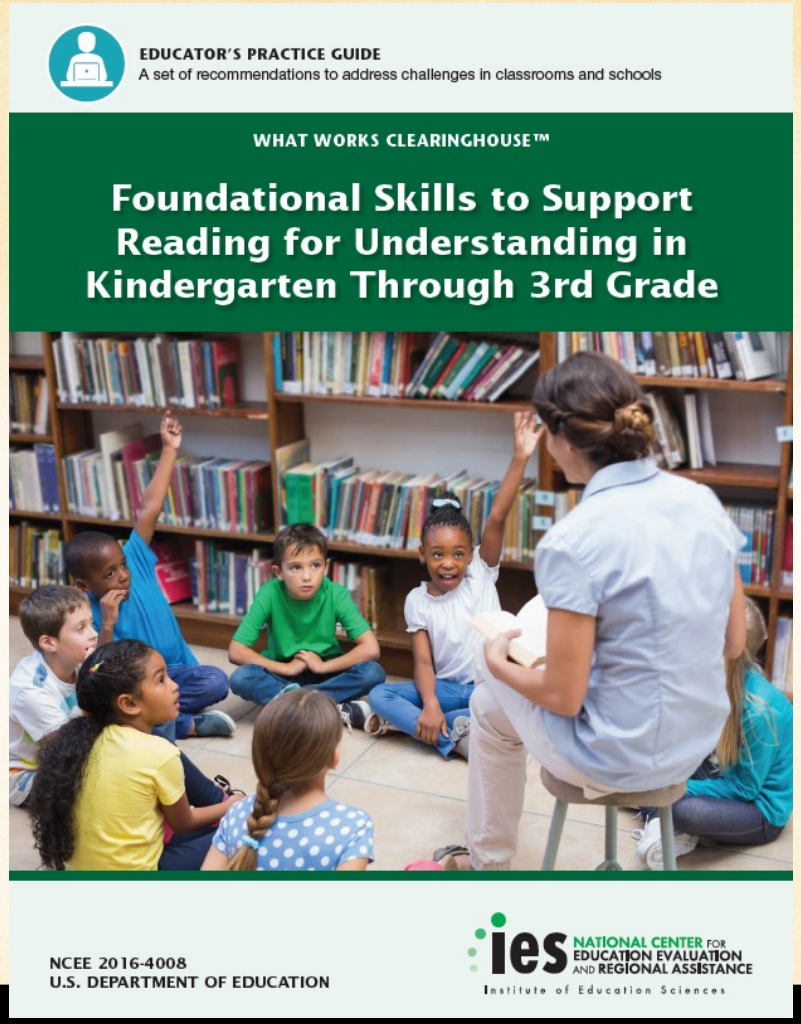
Name		Fall
KA		25
BA		29
SW		20
RA		15
TV		12
JP		18
PJ		25
YD		14
CA		29
GA		0
OG		19
SM		4
TJ		12
AD		1
GM		17
QL		4
TE		29
CJ		3
VR		3
LD		2
RL		4
Median		14

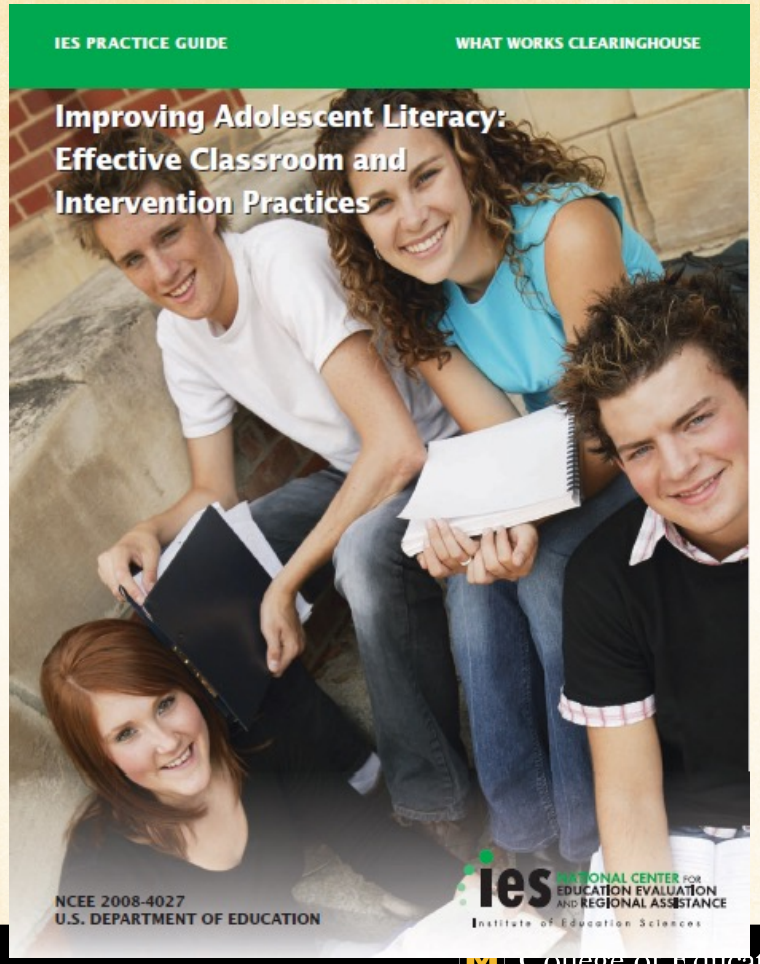
What is the Class Median?

MODEL

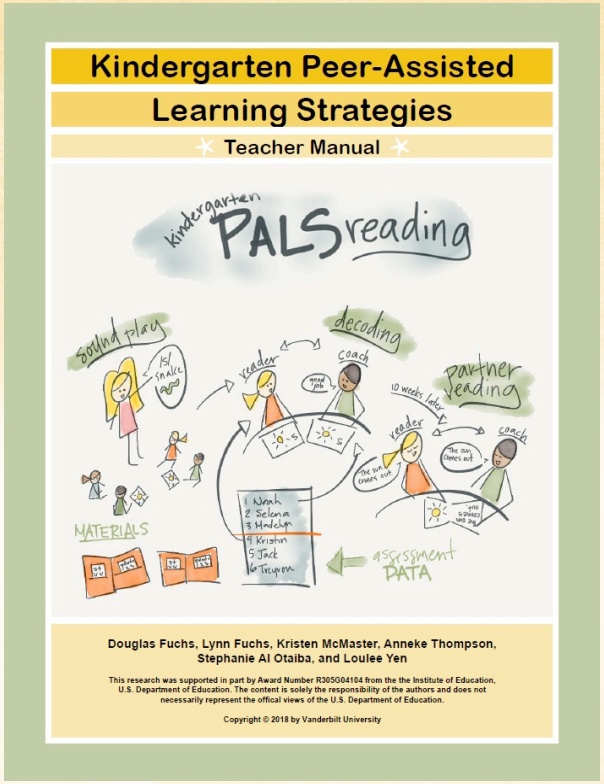
Student	Grade	Winter Benchmark 101 ORF WRC	Errors
A	3	21	8
B	3	18	6
C	3	87	1
D	3	110	0
E	3	46	6
F	3	92	1
G	3	89	3
H	3	98	1
I	3	119	2
J	3	96	2
K	3	50	8
L	3	122	2
M	3	97	1
N	3	49	6
O	3	105	0
P	3	86	6
Q	3	89	2
R	3	76	3
S	3	112	3
T	3	141	1
U	3	94	2
Class Median			

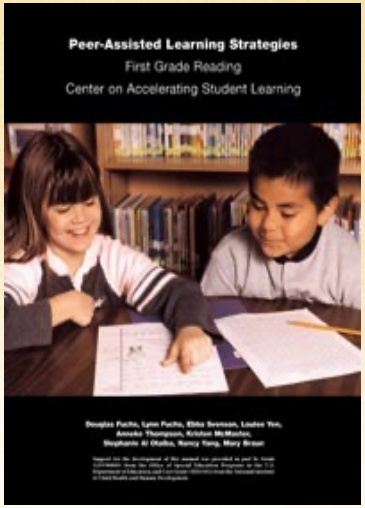
Student	Grade	Winter Benchmark 101 ORF WRC	Errors
B	3	18	6
A	3	21	8
E	3	46	6
N	3	49	6
K	3	50	8
R	3	76	3
P	3	86	6
C	3	87	1
G	3	89	3
Q	3	89	2
F	3	92	1
U	3	94	2
J	3	96	2
M	3	97	1
H	3	98	1
O	3	105	0
D	3	110	0
S	3	112	3
I	3	119	2
L	3	122	2
T	3	141	1
Class Median		92	

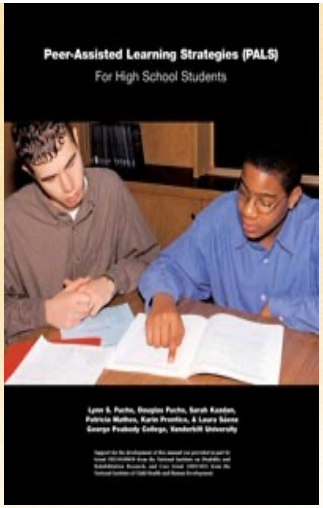


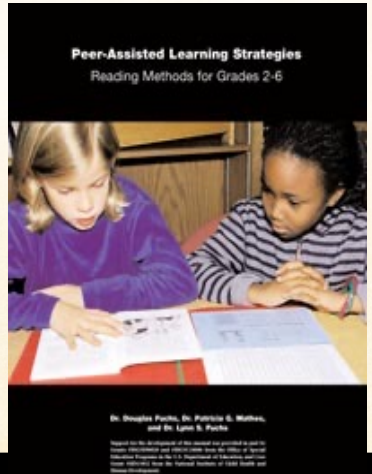


College of Education
& Human Development
University of Missouri









Classwide Intervention

http://kc.vanderbilt.edu/pals/

P A L S

Peer Assisted Learning Strategies

Objectives

- Increase students opportunity to read
- Includes tasks that all students can perform successfully
- Motivates students to become better readers
- Involves all students; creates opportunities for lower functioning students to assume an integral role in a valued activity
- Provides for positive and productive peer interaction

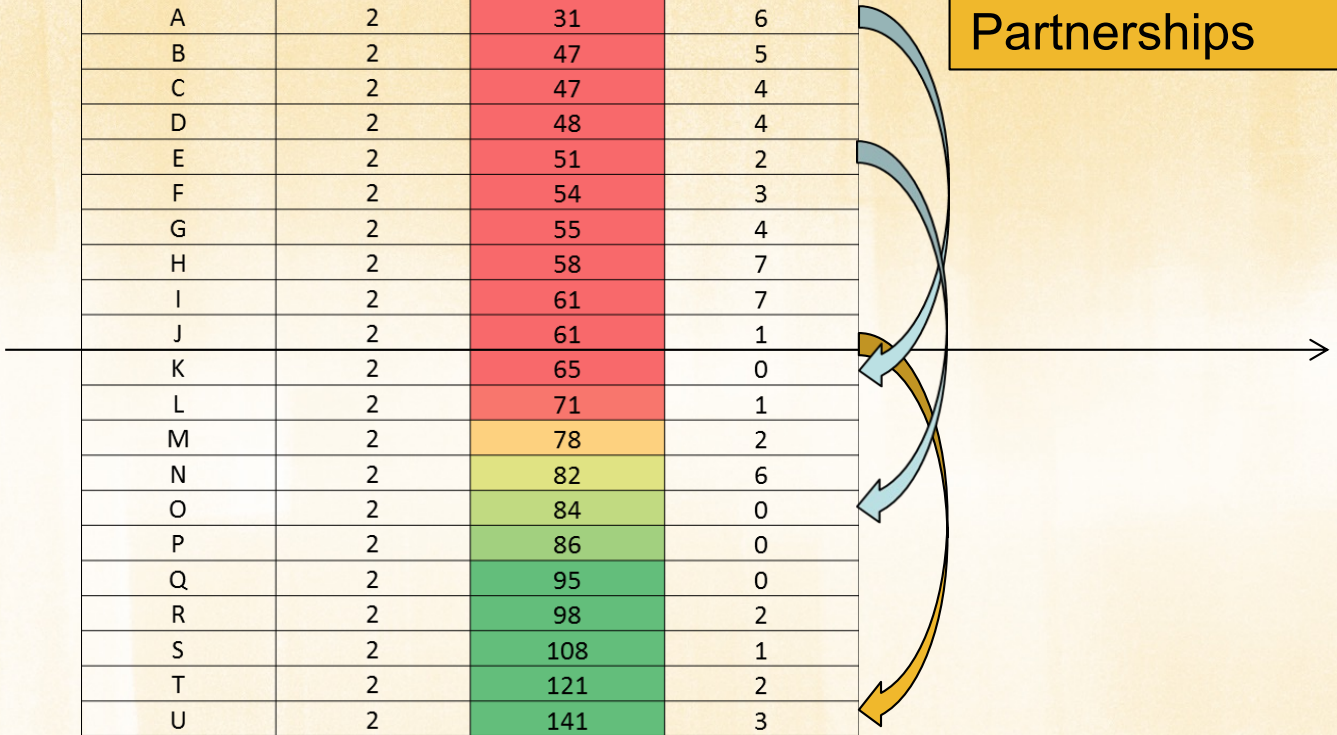
Overview

Partner Reading	**Paragraph Shrinking**
1. Stronger reader reads aloud for 5 minutes 2. The weaker reader reads aloud the SAME text for 5 minutes 3. Weaker readers sequence the major events of what has been read for 1 minute	1. For 5 minutes the stronger read continues reading new test in the story, stopping after ache paragraph to summarize 2. For 5 minutes the weaker reader continues with the new text, stopping after each paragraph to summarize

Set Up Procedures

Pairs/ Teams	Points	Selecting Text	Materials to Display
• Pair the top ranked higher performing student with the top ranked lower performing student, keep going until you have all your pairs. Students will remain with their partner the entire time. • 2. Divide the pairs into 2 teams.	Students earn points by: • Reading accurately • Summarizing what they have read • Working cooperatively with their partners • transitions	• Both members of a pair will read for the weaker reader's book. • Students should make no more than 10 errors per 100 words of text	• PALS rules • Types of Misread errors • Word recognition Correction Procedures • Pairs and Teams Chart • Score Board

Spring Benchmark		90	
Student	Grade	ORF	
		WRC	Errors
A	2	31	6
B	2	47	5
C	2	47	4
D	2	48	4
E	2	51	2
F	2	54	3
G	2	55	4
H	2	58	7
I	2	61	7
J	2	61	1
K	2	65	0
L	2	71	1
M	2	78	2
N	2	82	6
O	2	84	0
P	2	86	0
Q	2	95	0
R	2	98	2
S	2	108	1
T	2	121	2
U	2	141	3
Class Median			



Procedure

Partner Reading	Paragraph Shrinking
1. Stronger reader reads aloud for 5 minutes 2. The weaker reader reads aloud the SAME text for 5 minutes	1. For 5 minutes the stronger read continues reading new text in the story, stopping after each paragraph to summarize 2. For 5 minutes the weaker reader continues with the new text, stopping after each paragraph to summarize

Paragraph Shrinking

Name the most important **who** or **what.**

Tell the **most important thing** about the who or what.

Say the main idea in **10** words or less.

Correction Procedures

STOP. That word is_____

What word?

_____

Good Job!

Go back and read that line again.

Timeline

- **Collect Data: Pre-test (fluency and comprehension)**
- **Day 1:** Train Students on Set Up Procedures and Partner Reading, Practice Reading for 10 minutes, Error Correction
- **Day 2:** Train Students on Paragraph Shrinking, Practice Reading for 10 minutes
- **Day 3-10:** Partner Reading, Paragraph Shrinking 15 minutes every day
- **Collect Data: Post-test (fluency and comprehension)**

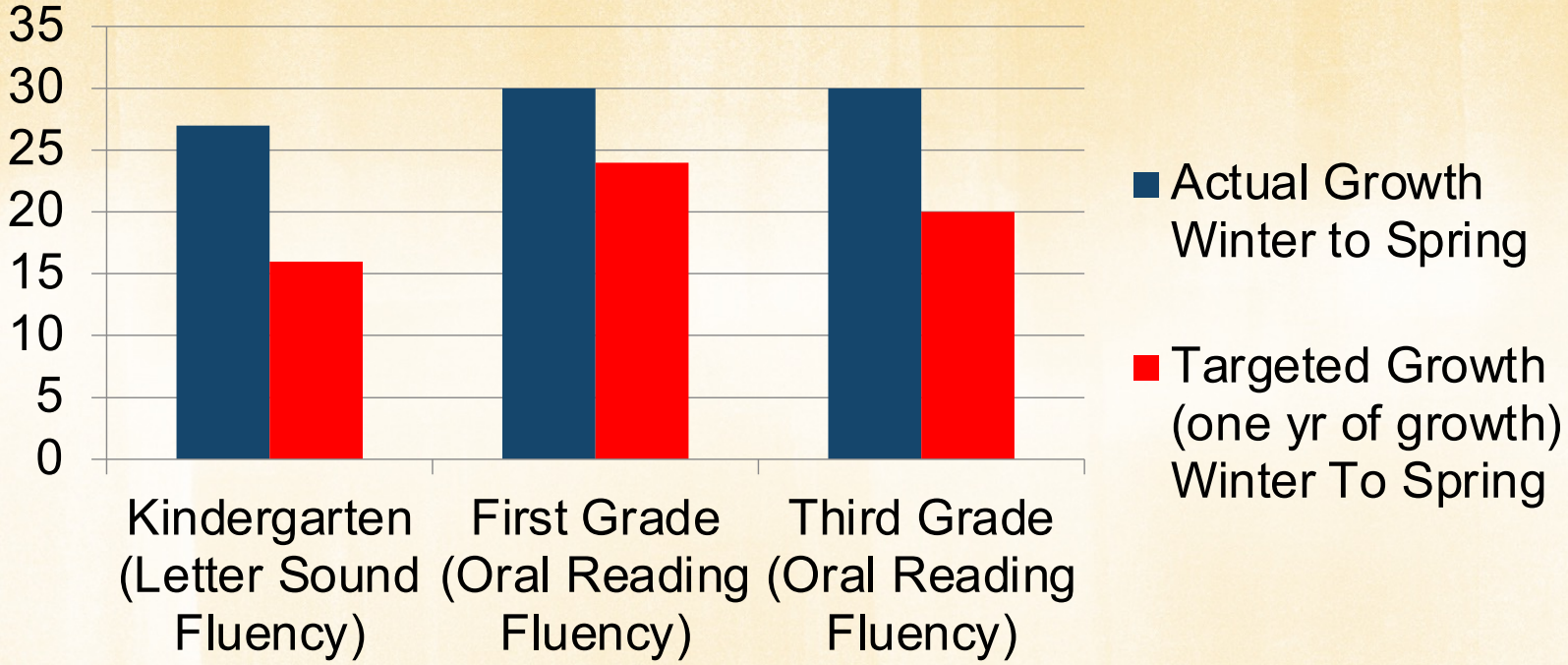
What we found: 3rd grade Partner Reading data

Third Grade			
Third Grade Benchmark	**91 Words Read Correctly (WRC)**		
	Pre Intervention Class Median (WRC)	**Post Intervention Class Median (WRC)**	**Slope (WRC)**
Class 1	81	104	11.5
Class 2	87	115	14

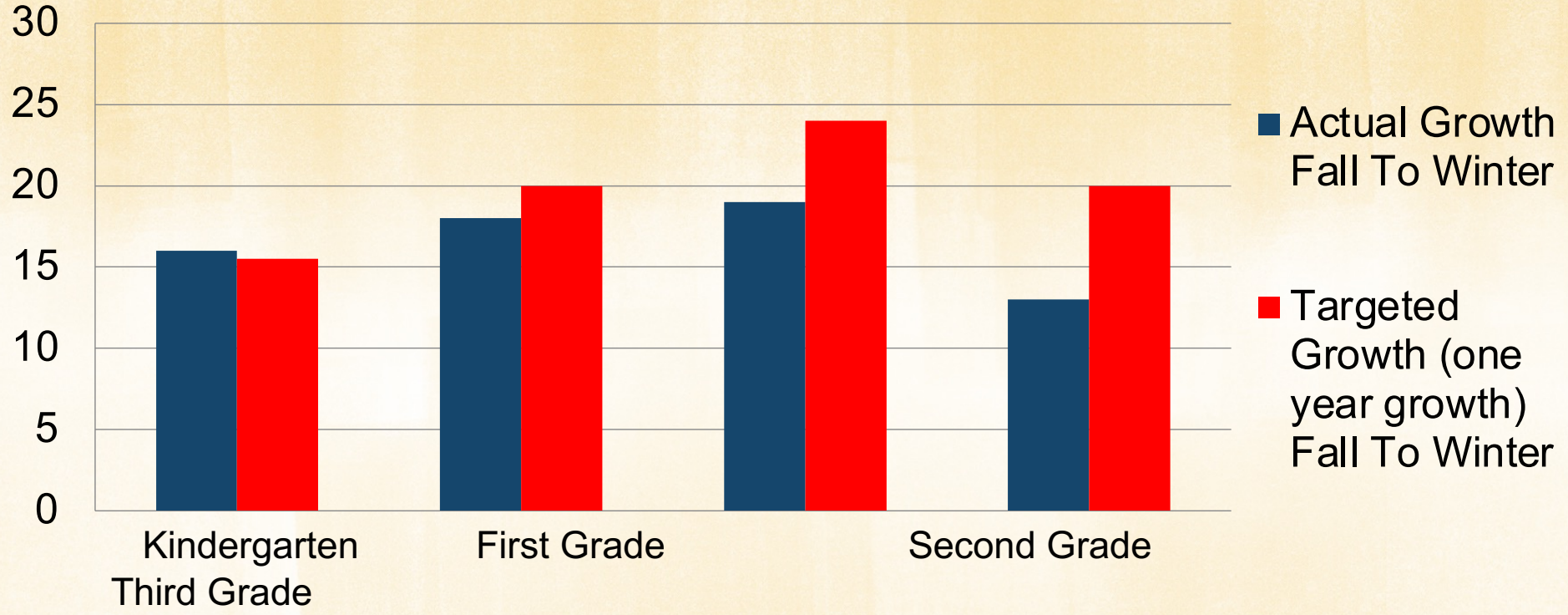
What we found: 3rd grade Partner Reading data

	Students Below Benchmark Pre Intervention	Students Below Benchmark Post Intervention	Total Students in Class
Third Grade Class 1	10	**5**	20
Third Grade Class 2	13	**5**	23

Growth from Winter to Spring Class-Wide Interventions 10 Classrooms K-3

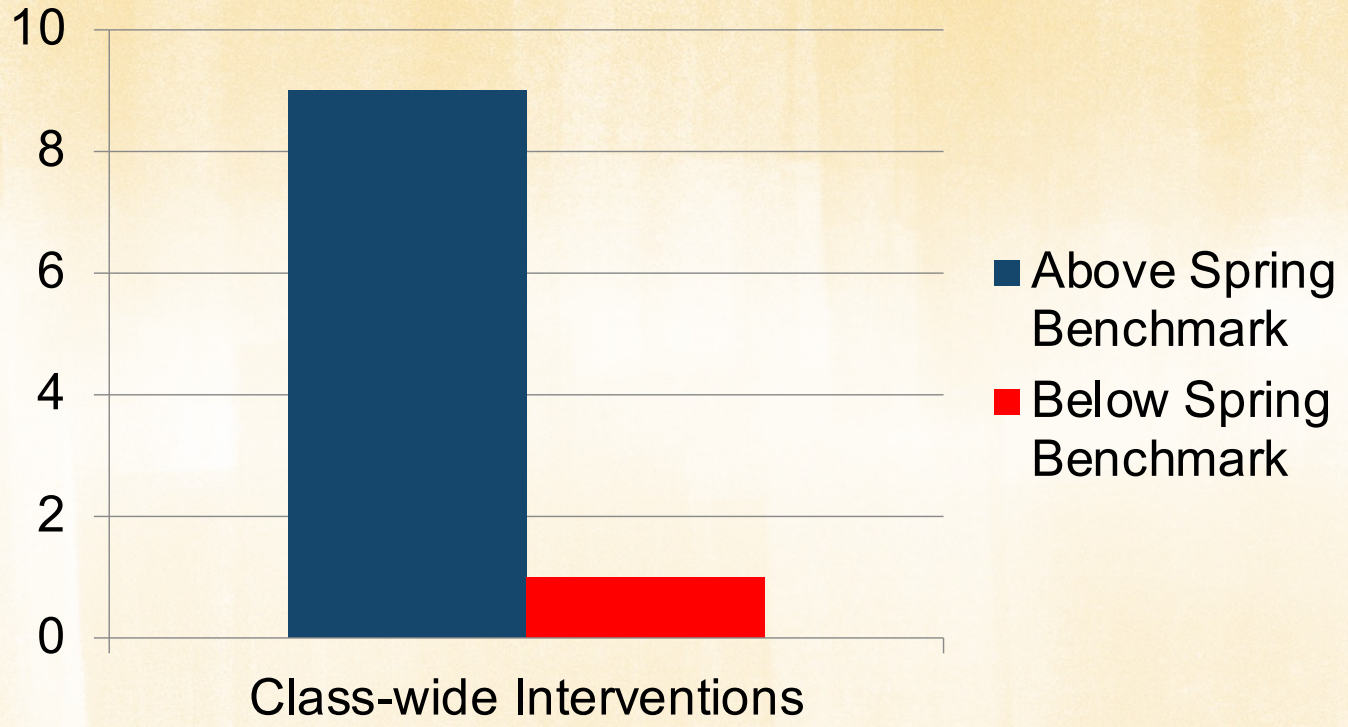


Growth from Winter To Spring NO Class-Wide Interventions 11 Classrooms K-3



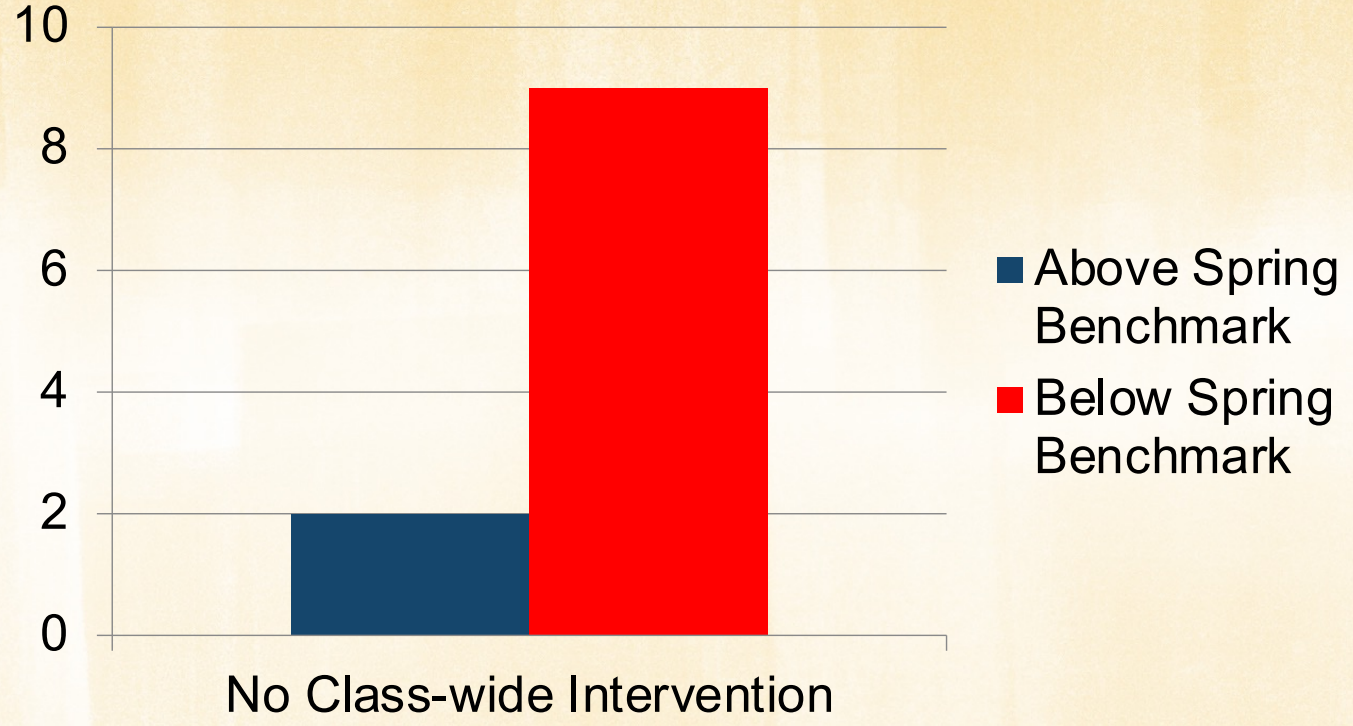
Class-wide Interventions Implemented in 10 of the 21 Classes Below Winter Benchmark:

9 of the 10 Above Spring Benchmark



NO Class-wide Intervention Implemented in 11 Classes Below Winter Benchmark

2 of the 11 Above Spring Benchmark



Science Project

Approximately 140 4th and 5th graders

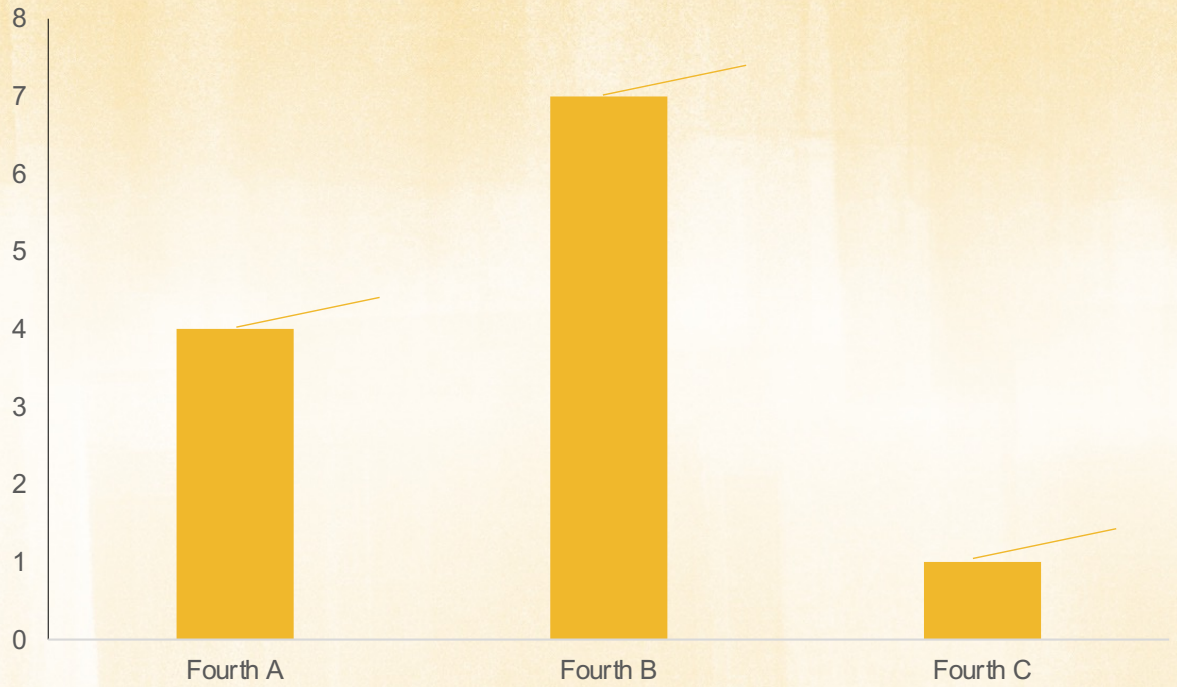
Science content

Readworks.org

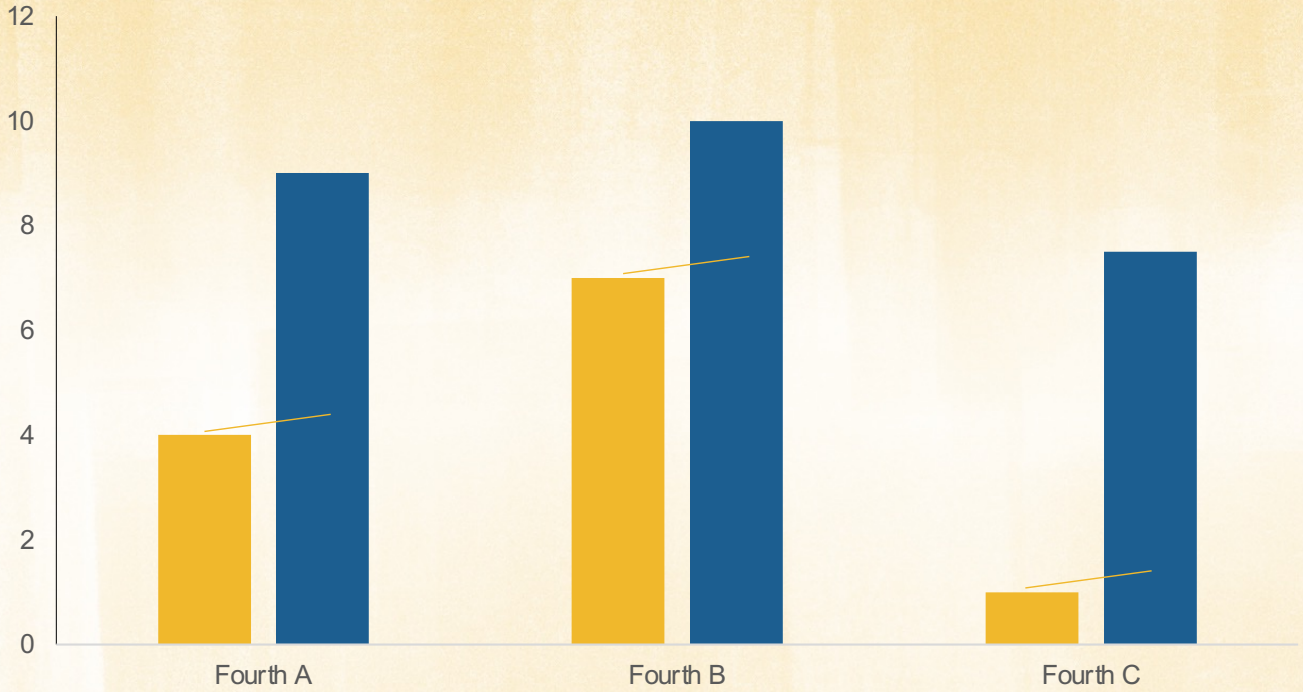
Grade level science MAZE

2 weeks

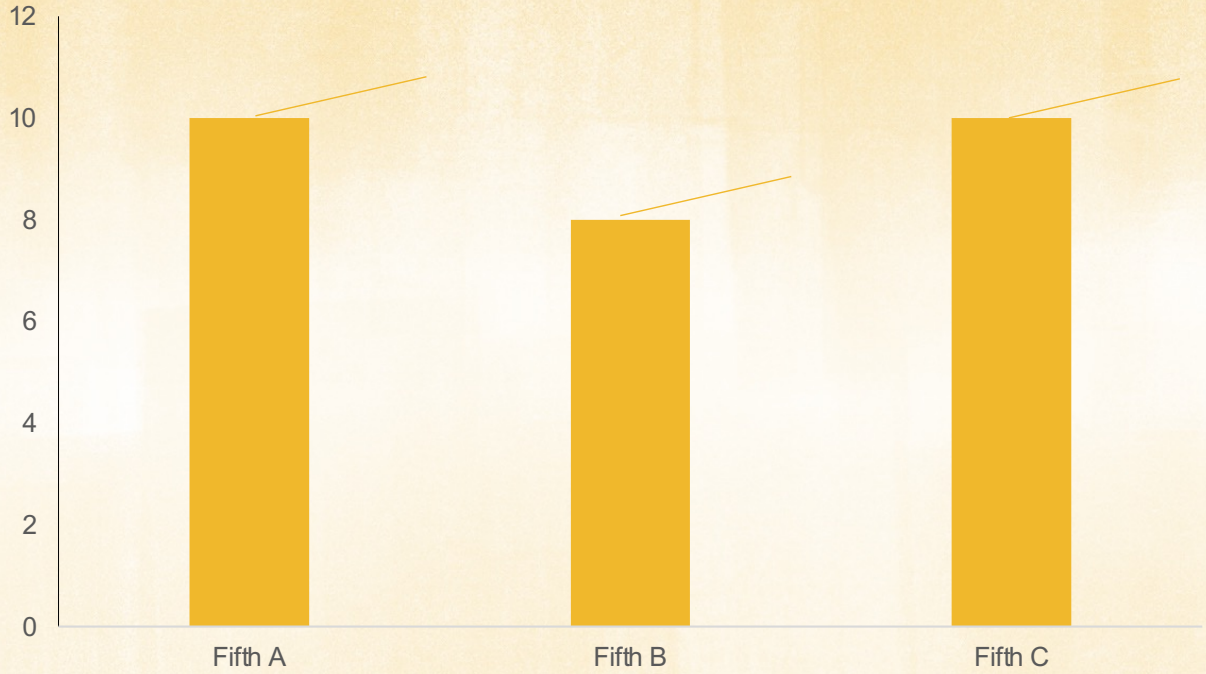
MAZE Growth 4th Grade



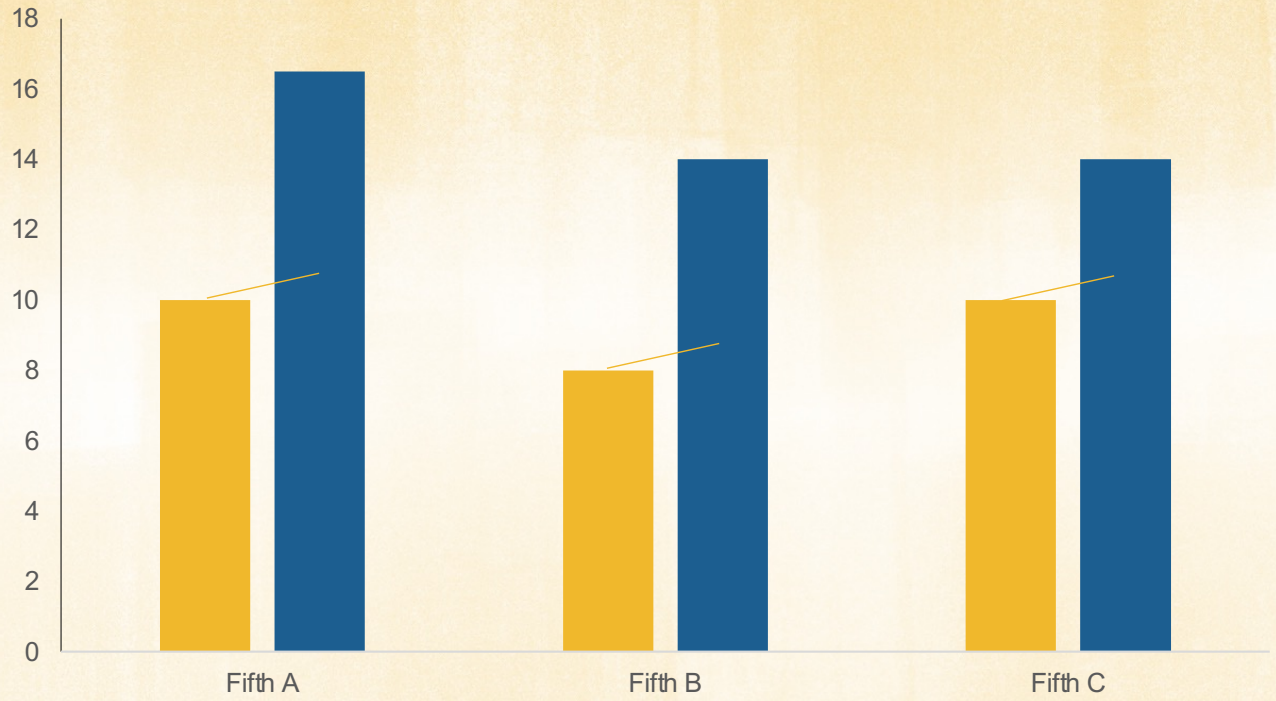
MAZE Growth 4th Grade

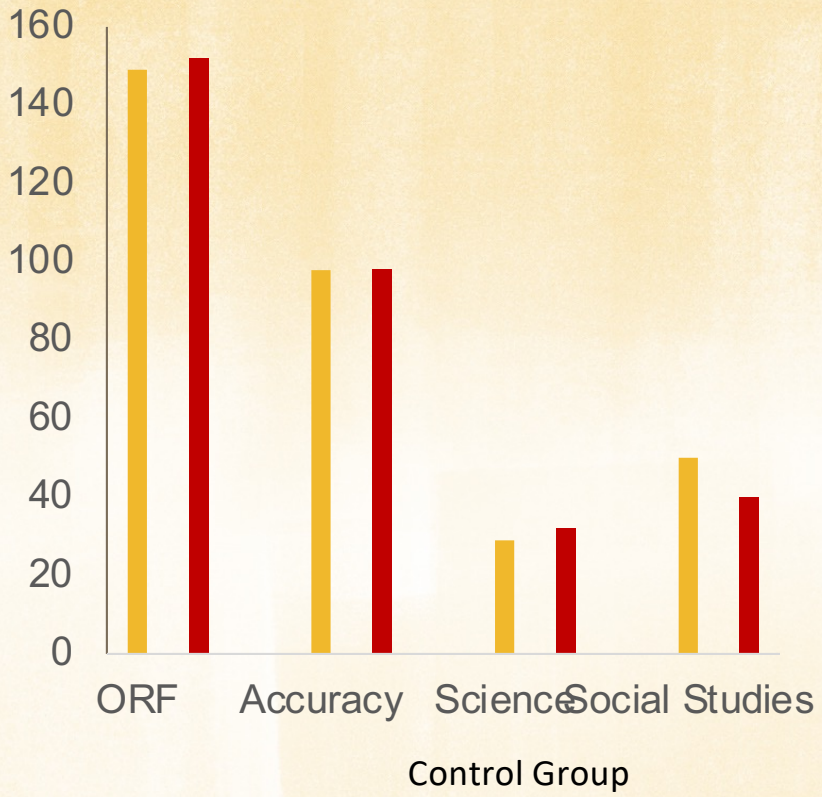


MAZE Growth 5th Grade

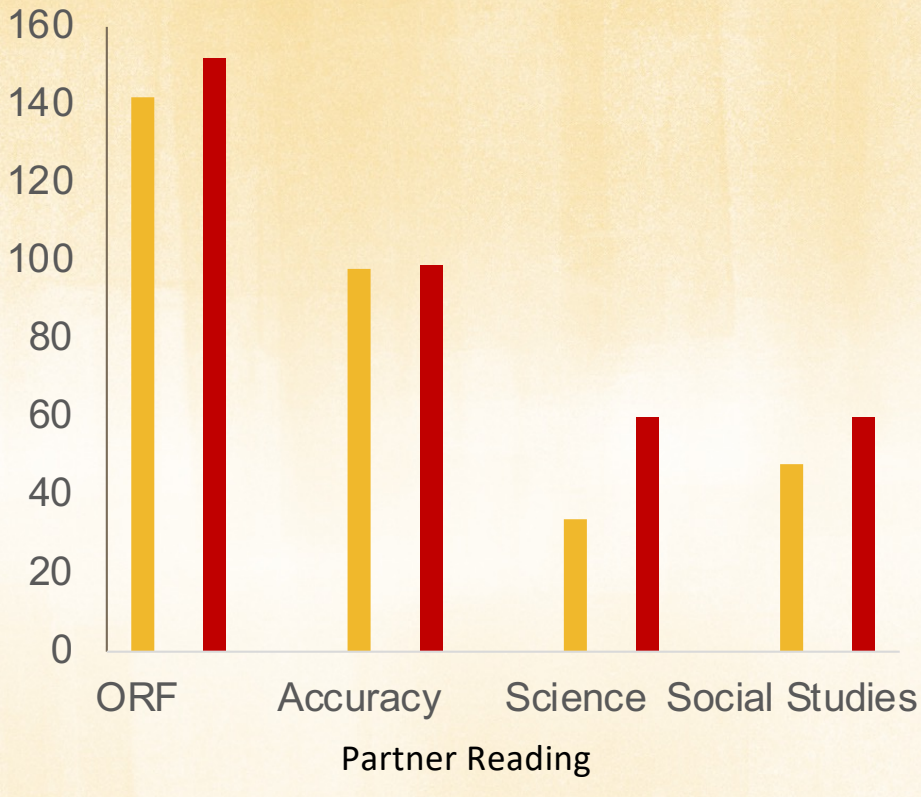


MAZE Growth 5th Grade

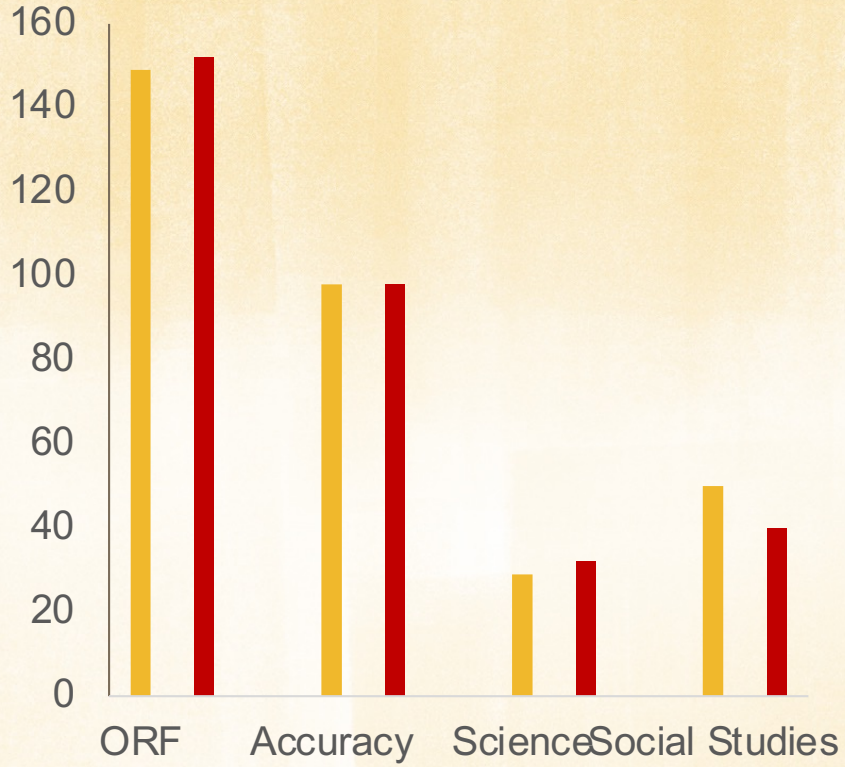




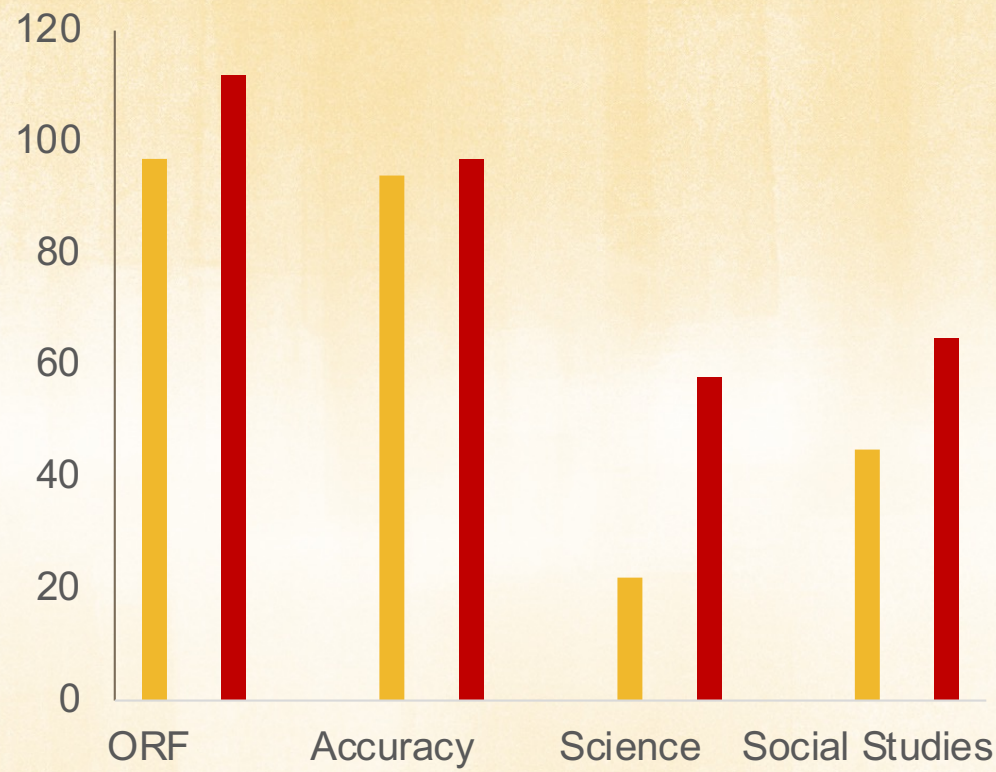
Control Group



Partner Reading



Control Group



Partner Reading ELL

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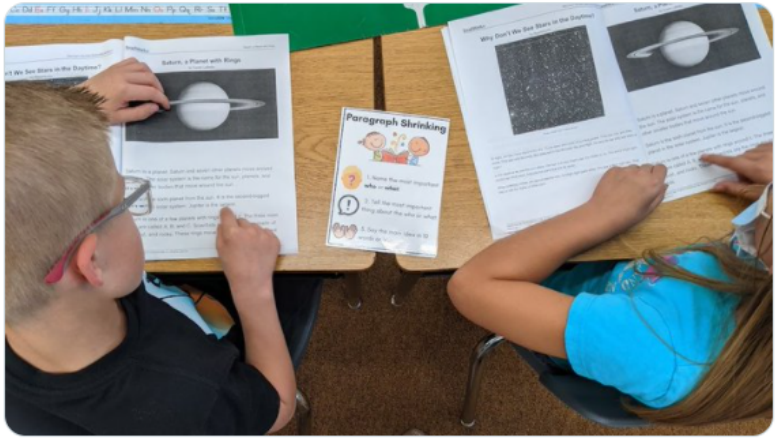
Lindsay Kemeny
@LindsayKemeny

Two weeks ago our class median for words correct per minute was 50 (2nd grade) . -Now our class median is 66! This is thanks to a class wide intervention I implemented after learning from @burnsmk1. I love doing mini-research in my classroom!



8:17 PM · Oct 12, 2021 · Twitter Web App

15 Retweets 8 Quote Tweets 144 Likes

Agreement

Pre CBM-R score and MAP-R score = 69.6%

Post CBM-R score and MAP-R score = 91.3%

	CBM-R Pre	CBM-R Post	MAP-Reading Score
Student 1	48	92	189
Student 2	122	142	194
Student 3	126	147	196
Student 4	82	113	190
Student 5	102	117	188
Student 6	77	97	190
Student 7	51	70	161
Student 8	84	95	192
Student 9	80	82	174
Student 10	102	127	188
Student 11	83	106	189
Student 12	38	47	149
Student 13	104	115	196
Student 14	152	161	211
Student 15	143	158	205
Student 16	115	125	195
Student 17	142	160	224
Student 18	114	127	196
Student 19	13	40	138
Student 20	75	92	185
Student 21	141	136	205
Student 22	87	105	189
Student 23	49	47	145
Median	87	113	190

Intervention

Each school shall use the diagnostic information to plan evidence-based appropriate and effective instruction and intervention.

Interventions for Children with LD

Reading comprehension	1.13
Direct instruction	0.84
Psycholinguistic training	0.39
Modality instruction	0.15
Diet	0.12
Perceptual training	0.08

Kavale & Forness, 2000

Personalized = Target Intervention to Reading Skills

Does One Size Fit All?

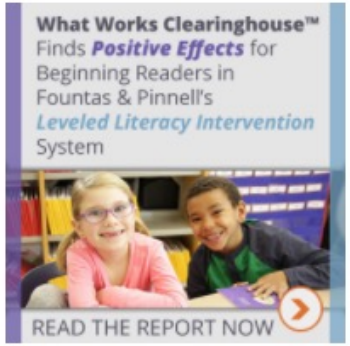

FRANK ZAPPA
and The
MOTHERS of INVENTION
ONE SIZE FITS ALL

Intervention?

EXPLORE FP Literacy | EXTEND Your Expertise | ENGAGE With Peers | Visit other FPL sites | Shop

Leveled Literacy Intervention (LLI)

The *Fountas & Pinnell Leveled Literacy Intervention* is a powerful, short-term intervention, that provides daily, intensive, small-group instruction, which supplements classroom literacy teaching. *LLI* turns struggling readers into successful readers with engaging leveled books and fast-paced, systematically designed lessons.



What is it? | **Who is it for?** | What is inside? | How is it implemented?

The *LLI* systems are designed to be used with small groups of students who need intensive support to achieve grade-level competencies in grades K through 12. It also provides strong support for students who are acquiring English as an additional language and are receiving classroom reading instruction in English. You may also decide to include students who are identified as having special needs if the content of *LLI* meets the educational program specifications for the student.

Education
Development
ouri

Leveled Literacy Intervention

Effect Sizes

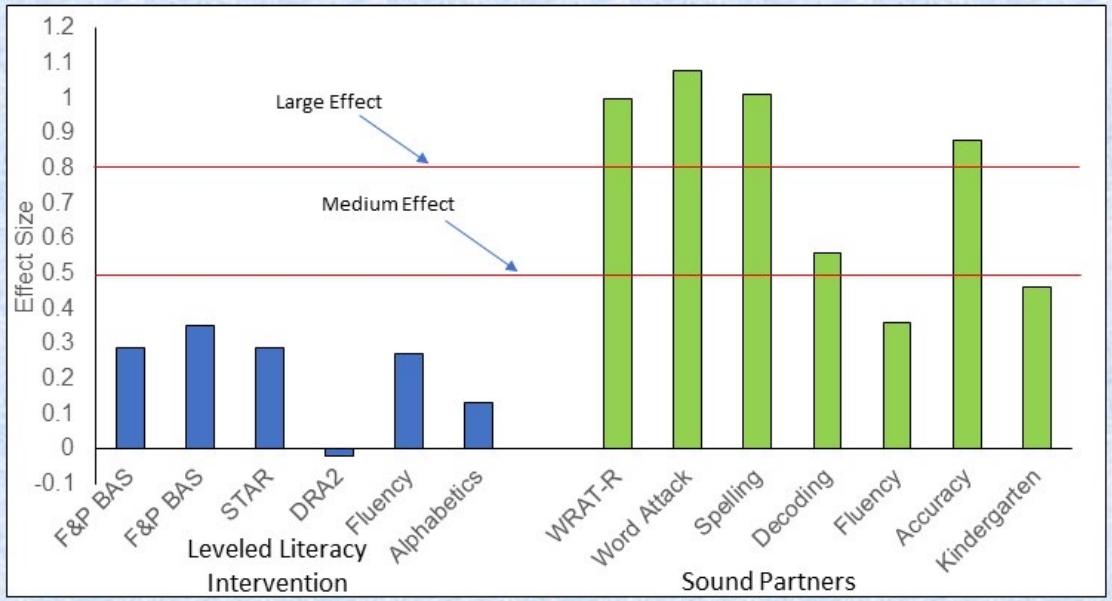
Kindergarten = 0.26

First Grade = 0.36

Second Grade = ***-0.09***

Ransford-Kaldon, C. R., Flynt, E. S., Ross, C. L., Franceschini, L. A., Zoblotsky, T. A., Huang, Y., & Gallagher, B. (2010). Implementation of effective intervention: An empirical study to evaluate the efficacy of Fountas & Pinnell's Leveled Literacy Intervention Program (LLI) for 2009-2010. Memphis, TN: The University of Memphis, Center for Research in Educational Policy.

How Effective is the Leveled Literacy Intervention for K-2 Students?



Fountas & Pinnell:

- **BAS – Diagnostic accuracy of 54% for identifying struggling readers (Parker et al., 2015)**
- **58% of Struggling readers could not read the book that was at their level according to F&P (Burns et al., 2015)**

Sources:

LLI - https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc_leveledliteracy_091917.pdf

Sound Partners - https://charts.intensiveintervention.org/aintervention

Reading Interventions for Tier II

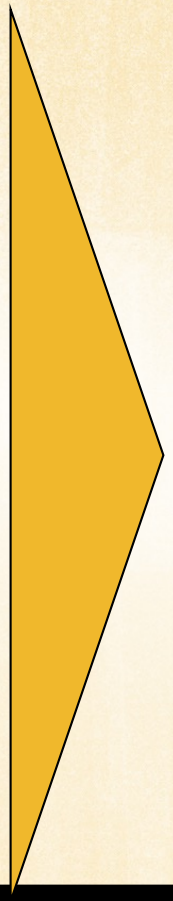
PALS

Read 180

Read Naturally

Rewards

LLI



PROFICIENT READING

National Reading Panel

Is phonemic awareness instruction effective in helping children learn to read?

Reviewed 52 studies of PA instruction.

Three general outcomes were explored

- PA tasks such as phoneme manipulation,
- spelling,
- and reading tasks such as word reading, pseudoword reading, reading comprehension, oral text reading, reading speed, time to reach a criterion of learning, and miscues

National Reading Panel Results

PA instruction demonstrated better efficacy over alternative instruction models or no instruction

Improved PA measures (strong), reading (*d* = .53) and spelling skills

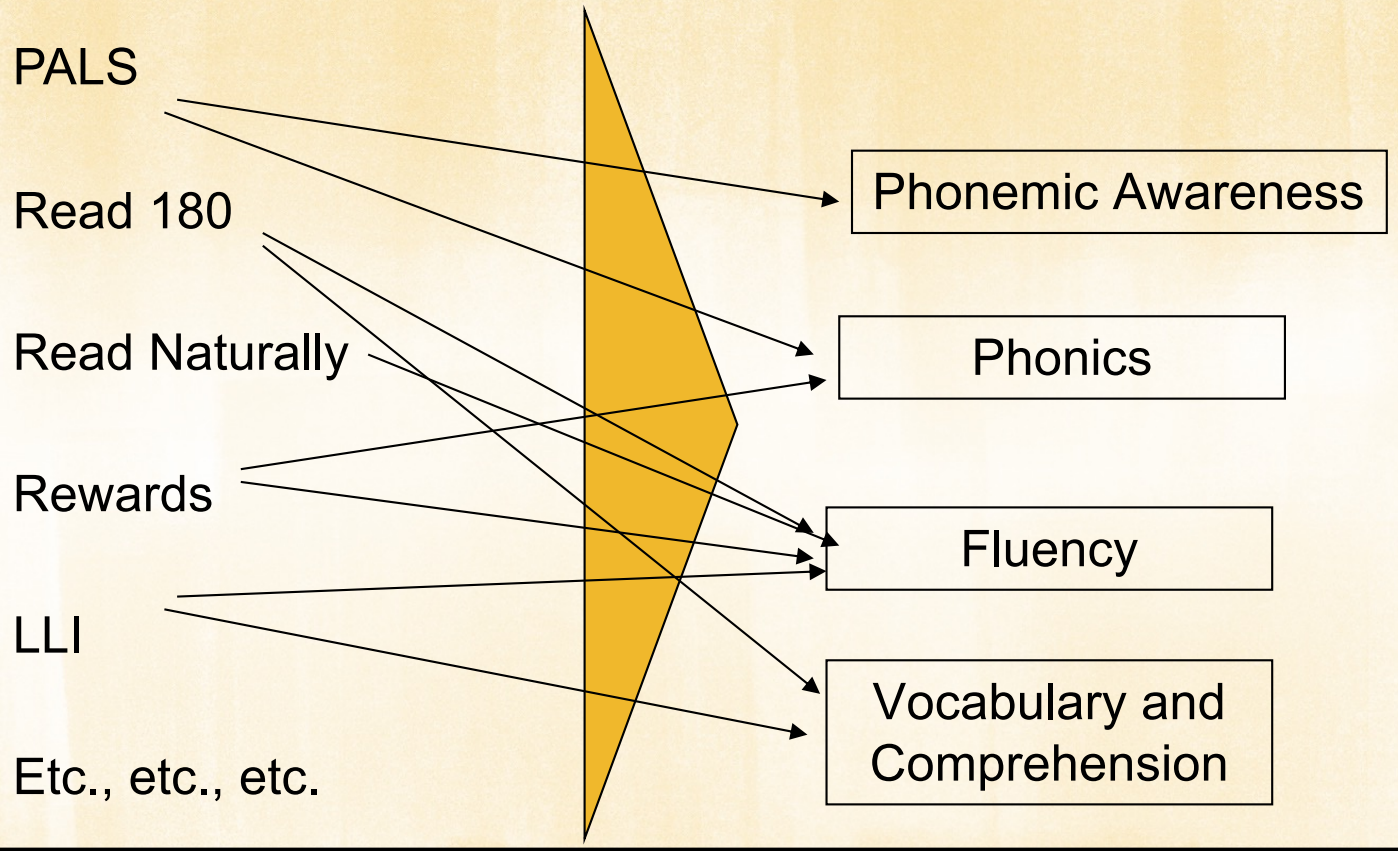
Teaching one or two PA skills was preferable to teaching three or more

PA instruction benefited reading comprehension (Ehri et al.).

Means and Ranges of Effect Sizes by Reading Outcome Measure

	N	Mean ES	SD	Minimum	Maximum
Pseudowords	24	.84	.80	-.19	3.60
Words in Isolation	48	.92	.89	-.05	4.33
Contextual Reading	24	.37	.38	-.37	1.18

Tier II Interventions



Assess 4 NRP Areas

Phonemic Awareness

- Phoneme segmentation fluency (QPA, PAST, CTOPP)

Phonics

- Nonsense word fluency (WJ Pseudoword)

Fluency

- CBM-R (TOSCRF)

Vocabulary/Comprehension

- Measures of Academic Progress or STAR Reading

Grade	Phonemic Awareness	Phonics	Fluency	Comprehension
Kindergarten	Road to the Code	Sound Partners	NA	NA
First Grade	Road to the Code	Sound Partners	NA	NA
Second Grade	Phonological Awareness Tools and Strategies	Sound Partners	Read Naturally	Reciprocal Teaching
Third Grade	NA	Phonics for Reading	Read Naturally	Reciprocal Teaching
Fourth Grade	NA	REWARDS	Read Naturally	Reciprocal Teaching
Fifth Grade	NA	REWARDS	Read Naturally	Reciprocal Teaching

Category of Problem MN HS

9-12 with approximately 1600 students

69.2% pass reading

9^{th}-10^{th} grade

28% low on MAP (~225)

45% Low on TOSCRF (~100)

- 64% low on phonics (~65)
- 36% acceptable phonics (~36)

1. GOHOME

2. STOPNOW

3. HELPMERIDEFAST

11 4. SITDOWNLOOKAROUND

17 5. TWOGIRLSWENTTOAFARMFORAVISITTHEREWERECOWS PIGSDUCKSANDFIVEHENSTHEGIRLSGATHEREDTHE EGGSEVERYMORNING

15 6. FATHERWENTOUTTOBUYSOMEPRETTYFLOWERSTHECAKE COOKEDALITTLETOOLONGSOITWASBROWN

Groups

Randomly assigned to two groups

- Read 180
- Targeted (phonics – REWARDS, fluency – Read Naturally, comprehension – Read 180

Wait list control group

20 minutes each day for 13 weeks in addition to reading and study skills

	Targeted Interventions		Control		Waitlist Control	
Variable	Mean	SD	Mean	SD	Mean	SD
Fluency Pretest	90.17	7.65	89.88	9.73	na	na
Fluency Posttest	98.33	7.27	94.32	8.77	na	Na
MAP Fall	206.00	9.25	211.00	10.11	210.37	6.56
Map Winter	217.21	7.56	212.40	8.06	212.78	6.04

ANCOVA for fluency F (1, 42) = 4.98, $p < .05$, $d = .50$

ANCOVA for MAP F (2, 74) = 5.84, $p < .05$, partial eta squared = .14.

Results

Table 1. *Mean Oral Reading Fluency (ORF) and Measures of Academic Progress (MAP)*

	Targeted	Comprehensive	Tier 1
Second Grade	*N* = 80	*N* = 38	*N* =188
ORF	1.33	1.07	1.25
MAP	0.56	0.40	0.39
Third Grade	*N* =95	*N* =177	*N* = 31
ORF	1.23	.94	1.03
MAP	.37	.42	.35

Targeted Intervention Grade 2 MANOVA $F(4, 602) = .965$, $p < .05$
Targeted Intervention Grade 3 MANOVA $F(4, 596) = .958$, $p < .05$

Table 2. *Percentage of Students Making One Year's Growth on CBM-R and/or MAP*

	Tier 1		Targeted		Comprehensive	
	Neither Measure	At Least 1 Measure	Neither Measure	At Least 1 Measure	Neither Measure	At Least 1 Measure
2nd Grade	38%	62%	30%	70%	45%	55%
3rd Grade	30%	70%	27%	73%	52%	48%

Meta-Analysis

24 studies of K-8 small-group reading interventions

- 27 effects

Median *g* = 0.54

Age

- K-2 = 0.66
- 3-8 = 0.22

Targeted (comprehension, fluency, vocabulary, decoding, phonemic awareness)

- 14 effects, *g* = 0.65

Comprehensive

- 13 effects *g* = 0.33

Hall & Burns (2018)

Student	MAP RIT	RIT %ile	ORF	Accuracy
2	144	1	2	20%
36	146	1	7	41%
33	148	1	11	52%
34	160	6	22	82%
10	158	3	23	77%
27	158	3	27	87%
7	154	1	30	77%
11	160	6	31	82%
6	160	6	36	86%
5	152	1	38	91%
4	169	24	42	91%
32	166	17	44	90%
37	161	8	50	96%
17	174	37	54	95%
9	162	9	57	88%
30	155	1	57	93%
26	166	17	58	92%
3	177	45	68	96%
19	180	53	68	94%
22	190	78	72	99%
13	172	32	74	96%
1	175	39	75	95%
8	187	71	76	96%
14	182	58	78	99%
31	172	32	81	96%
25	176	42	86	99%
38	184	64	97	97%
28	193	84	100	99%
23	191	80	105	98%

Analysis to Action

Benchmark Data Worksheet

Meeting Date: _____ Teacher Name:_____Assessment Analyzed:_____ Class-wide Median:_____

Determine Need:			**Action Items:**	
Is a Class-wide Intervention necessary ? Yes No **If yes, then…**			• Determine appropriate Class-wide Intervention: _____ • Determine Start Date:_____ • Determine End Date:_____ • Schedule Fidelity Check:_____ • Progress Monitor Assessment_____	
Which students fall within the at-risk range? **Are there any students we missed?**			**Among students identified as needing a Tier 2 intervention, what is the category of the problem? (phonemic awareness, decoding, fluency, vocabulary, comprehension)**	**What intervention do you plan to use to address the problem?**
Student Name:	**WRC/Error**	**Accuracy**		
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

Benchmark Criterion FALL: ____WINTER: ____SPRING: ___

Second Grade Practice Data

- What is the class median?
- Does this class need a class-wide intervention?
- Why?
- Use the Intervention Flowchart to decide what is appropriate for this class.
- Assign student partnerships, if appropriate.

Student Partnerships	
Coach	Reader

Spring Benchmark		90		
Student	Grade	ORF		
		WRC	Errors	Accuracy
A	2	31	6	83.8%
B	2	47	5	90.4%
C	2	47	4	92.2%
D	2	48	4	92.3%
E	2	51	2	96.2%
F	2	54	3	94.7%
G	2	55	4	93.2%
H	2	58	7	89.2%
I	2	61	7	89.7%
J	2	61	1	98.4%
K	2	65	0	100%
L	2	71	1	98.6%
M	2	78	2	97.5%
N	2	82	6	93.2%
O	2	84	0	100%
P	2	86	0	100%
Q	2	95	0	100%
R	2	98	2	98.0%
S	2	108	1	99.1%
T	2	121	2	98.4%
U	2	141	3	97.9%
Class Median				

Third Grade Practice Data

- What is the class median?
- Does this class need a class-wide intervention?
- Why?
- Use the Intervention Flowchart to decide what is appropriate for this class.
- Assign student partnerships, if appropriate

Student Partnerships	
Coach	**Reader**

Winter Benchmark		91		
Student	**Grade**	**ORF**		
		WRC	**Errors**	**Accuracy**
A	3	34	6	
B	3	41	5	
C	3	44	4	
D	3	58	4	
E	3	67	2	
F	3	78	3	
G	3	83	4	
H	3	87	7	
I	3	89	7	
J	3	93	1	
K	3	94	0	
L	3	96	1	
M	3	97	2	
N	3	100	6	
O	3	112	0	
P	3	125	0	
Q	3	130	0	
R	3	149	2	
S	3	156	1	
T	3	161	2	
Class Median				

PRESS
Path to Reading Excellence in School Sites

Analysis to Action

Benchmark Data Worksheet 3rd grade

Meeting Date: 1/21/13 Teacher Name: Burke Assessment Analyzed: ORF Class Wide Median: 93.5

Determine Need:	**Action Items:**
Is a Whole Class Intervention necessary? Yes (No) — If yes, then...	• Determine appropriate Class Wide Intervention: _____ • Determine Start Date: _____ • Determine End Date: _____ • Schedule Fidelity Check: _____ • Progress Monitor Assessment: _____
Which students fall within the at-risk range? Are there any students we missed?	**Among students identified as needing a Tier 2 intervention, what is the category of the problem? (phonemic awareness, decoding, fluency, vocabulary, comprehension)**

Student Name:	WRC/Error	Accuracy	
1. Student A	34/6	.85	Decoding
2. Student B	41/5	.89	Decoding
3. Student C	44/4	.92	Decoding
4. Student D	58/4	.94	Fluency
5. Student E	67/2	.97	Fluency
6. Student F	78/3	.96	Fluency
7. Student G	83/4	.95	Fluency
8. Student H	87/7	.93	Decoding / Fluency
9. Student I	89/7	.93	Decoding / Fluency

Benchmark Criterion **FALL:** 70 WRC **WINTER:** 91 WRC **SPRING:** 109 WRC

ACCURACY
≥ 93%
Fluency
intervention

Intensify the Intervention

Tier 2

Student	Measure	# of Weeks Pre BEA	Pre BEA Slope
1	WRC	20	0.25
2	WRC	12	-0.64
3	WRC	10	1.50
4	LSC	22	-0.15
5	WRC	6	3.00
6	WRC	10	-3.05
7	WRC	16	0.07
8	WRC	14	0.71
9	WRC	8	0.90
10	LSC	20	1.32
11	WRC	8	-0.25
12	WRC	18	0.11
13	WRC	18	0.44
14	WRC	6	0.00
15	LSC	22	0.29
16	LSC	14	0.82

College of Education
& Human Development
University of Missouri

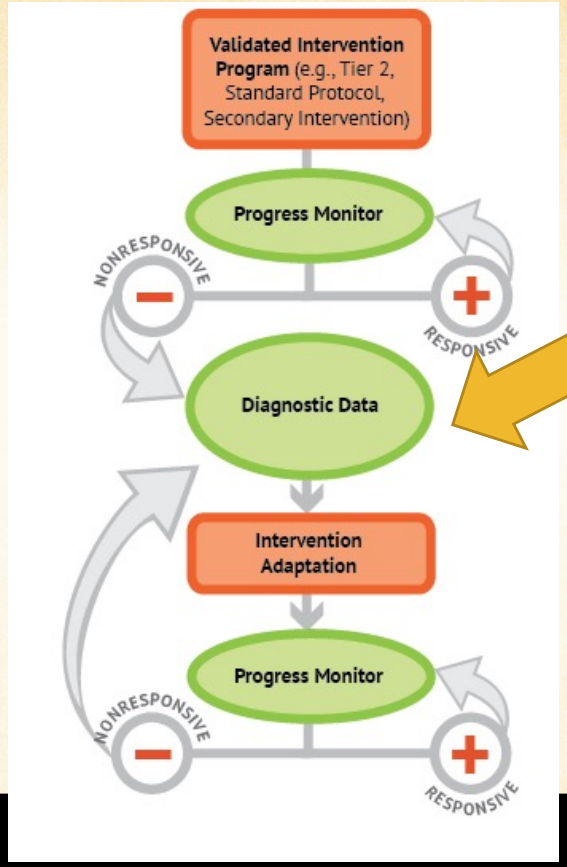
Tier II Problem Solving Questionnaire

Student Name _____ Grade _____ Teacher _____ School _____
Intervention Group _____ Intervention Instructor _____
Current Intervention _____ Past Interventions _____
Data Meeting Date _____

Question	Answer	Notes
1. Is the most recent GOM score below the upcoming seasonal target but the GOM slope is at or above the criterion?	**YES** Continue supplemental support/Intervention. **NO** Examine skill measure data.	
2. Are the skills being acquired using current strategy?	**YES** Continue with current strategy. Add generalization strategy. **NO** Adjust intervention within level of support to match skill need.	
3. Is the student individually practicing the skill many times within the session?	**YES** **NO** Increase individual responses.	
4. Is the mean instructional fidelity during intervention with the student below 90%?	**YES** Improve instructional fidelity **NO**	
5. Is student showing motivation difficulties?	**YES** Provide incentives **NO**	
6. Is the student attendance below 95% during last instructional period (1 month)	**YES** Address attendance with building administration **NO**	
7. Are behavioral difficulties leading to student missing intervention more than 3 times during the last instructional period? (1 month)	**YES** Address behavior difficulties with building administration. **NO**	
8. Has the student received intervention with good fidelity for less than 9 weeks?	**YES** Implement intervention for up to 9 weeks. **NO**	
9. Has the student received intervention four times per week for the past instructional period ***for less than*** 15 minutes for kindergarten or ***less than*** 20 minutes for grades 1-3?	**YES** Increase time and sessions. **NO**	
10. ***If NO to Questions 4-8*** above and **YES** to Question 3, consider moving to Brief Experimental Analysis (BEA)/Tier III		

Next steps: Action Plan: Intervention modifications _____
Date to start: _____
Date to review (4 weeks) _____
Date:_____ Was there satisfactory improvement **YES:** Continue **NO:** Go to Tier III (conduct BEA)

Framework to Intensify Interventions



Aptitude by Treatment Interaction (ATI)

Differential intervention effectiveness based on student aptitudes (cognitive processes).

Chronbach, 1957

Makes intuitive sense – popular.

Resurgence in ATI

RTI – tier 3

Measures of cognitive processes:

- abilities would predict student outcomes better than CBM (Hale, 2006)
- Provide data useful for designing interventions (Fiorello et al, 2006; Floyd et al., 2003; Hale et al., 2001).

Current measures of underlying aptitudes are more sophisticated than those used in Cronbach's research (Swanson, 1987).

Merge Neuropsych and RTI (Feifer, 2008)

We should assess cognitive constructs such as verbal IQ, executive functioning, working memory, attention, and reading fluency.

“Specifying the underlying linguistic and cognitive factors associated with poor reading comprehension skills may be helpful toward developing more effective intervention strategies to assist children” (p. 824), especially for those receiving a Tier 3 intervention.

Table 2
Median Effect Sizes for Each Variable

Variable	*k*	Median *g*	95% CI	Fail-safe *N* for a small effect	Fail-safe *N* for a large effect
Use of data					
Screening	30	.41	.31–.51	32	15
Designing interventions	4	.42	−.05–.89	4	2
Tier of intervention					
Small group	15	.30	.18–.42	8	9
Individual	16	.44	.28–.60	19	7
Type of assessment					
Cognitive function	8	.17	−.07–.41	NA	6
Phonological/phonemic awareness	13	.50	.34–.66	20	5
Reading fluency	11	.43	.29–.57	13	5
Mixed	2	.26	.12–.40	1	1

Executive Functioning (EF)

Jacob and Parkinson (2015) - 67 Studies

Most of studies occurred in 2010 or later

EF and academic skills are correlated (equal for reading and math)

Changing skills in EF **did not** lead to increased skills in reading and math

No evidence for causal link between EF and reading or math

Working Memory

Melby-Lervag & Hulme, 2012

- Verbal Ability .13
  - Comprehension and problem solving Children (-.05)
  - Young children (.03)
- Word Decoding .13
- Arithmetic .07

"There was no convincing evidence of the generalization of working memory training to other skills."

Table 1. summary of Meta-Analyses Regarding Cognitive Processes and Academic interventions

Study	Description	*k*	*d*
Burns et al. (in press)	Academic interventions from cognitive processing measures	37	0.17
Kearns & Fuchs (2013)*	Academic outcomes of cognitively focused intervention	34	0.44
	matched to cognitive deficits	5	0.48
	Compared to no intervention	11	0.58
	Compared to academic interventions	34	0.26
Melby-Lervag & Hhulme, (2013)	Working memory training and academic outcomes	8	0.11
	mathematics	7	0.07
	Decoding	7	0.13
	Verbal ability (comprehension)	8	0.13
Scholin & Burns (2012)	Predicting response to intervention for reading with IQ	18	0.27
Stuebing et al. (2009)	Relationship between IQ and academic outcomes	22	0.32
Stuebing et al. (2015)	Cognitive characteristics and response to intervention	54	0.46
	baseline characteristics and growth curves	36	0.65
	baseline characteristics and gain scores	30	0.43
	baseline characteristics and posttest	54	0.30
Schwaighofer et al. (2015)	Near and far transfers for working memory training	47	0.15
	mathematics	15	0.09
	Decoding	14	0.15
	Verbal ability (comprehension)	29	0.21
Total		**203**	**0.27**

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Reading fluency	11	.43	.29–.57	13	5
Mixed	2	.26	.12–.40	1	1

Skill-By-Treatment Interaction

Burns, Codding, Boice, & Lukito, 2008

Interventions selected based on student functioning in the specific skill

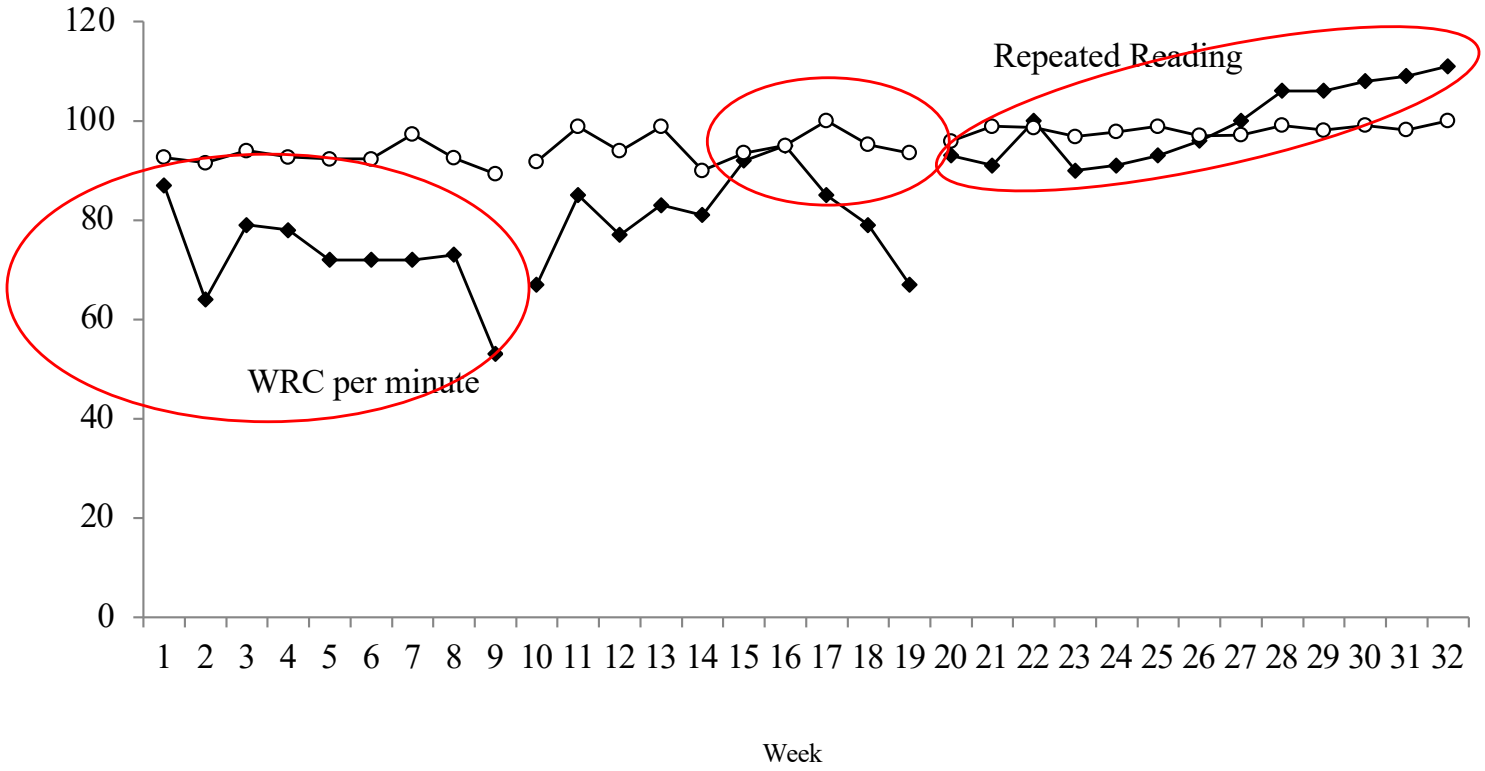
Systematically identify and manipulate environmental conditions that are directly related to a problem

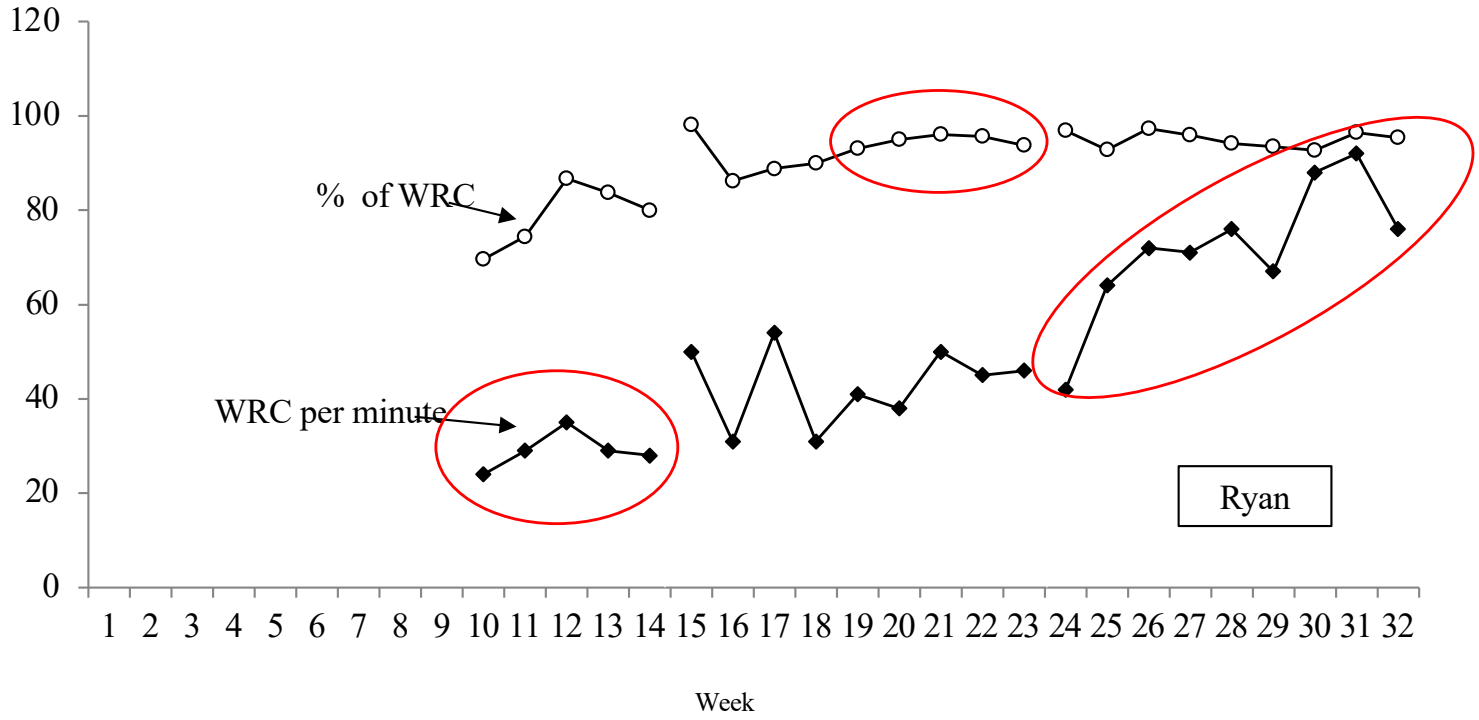
Isolate target skill deficits

Instructional Hierarchy:
Stages of Learning

	Acquisition	Proficiency	Generalization	Adaption
Learning Hierarchy	■Slow and inaccurate	■Accurate but slow	■Can apply to novel setting	■Can use information to solve problems
Instructional Hierarchy	■Modeling ■Explicit instruction ■Immediate corrective feedback	■Novel practice opportunities ■Independent practice ■Timings ■Immediate feedback	■Discrimination training ■Differentiation training	■Problem solving ■Simulations

Haring, N. G., & Eaton, M. D. (1978). Systematic instructional procedures: An instructional hierarchy. In N. G. Haring, T. C.


120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
Repeated Reading
WRC per minute
Week


120
100
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20
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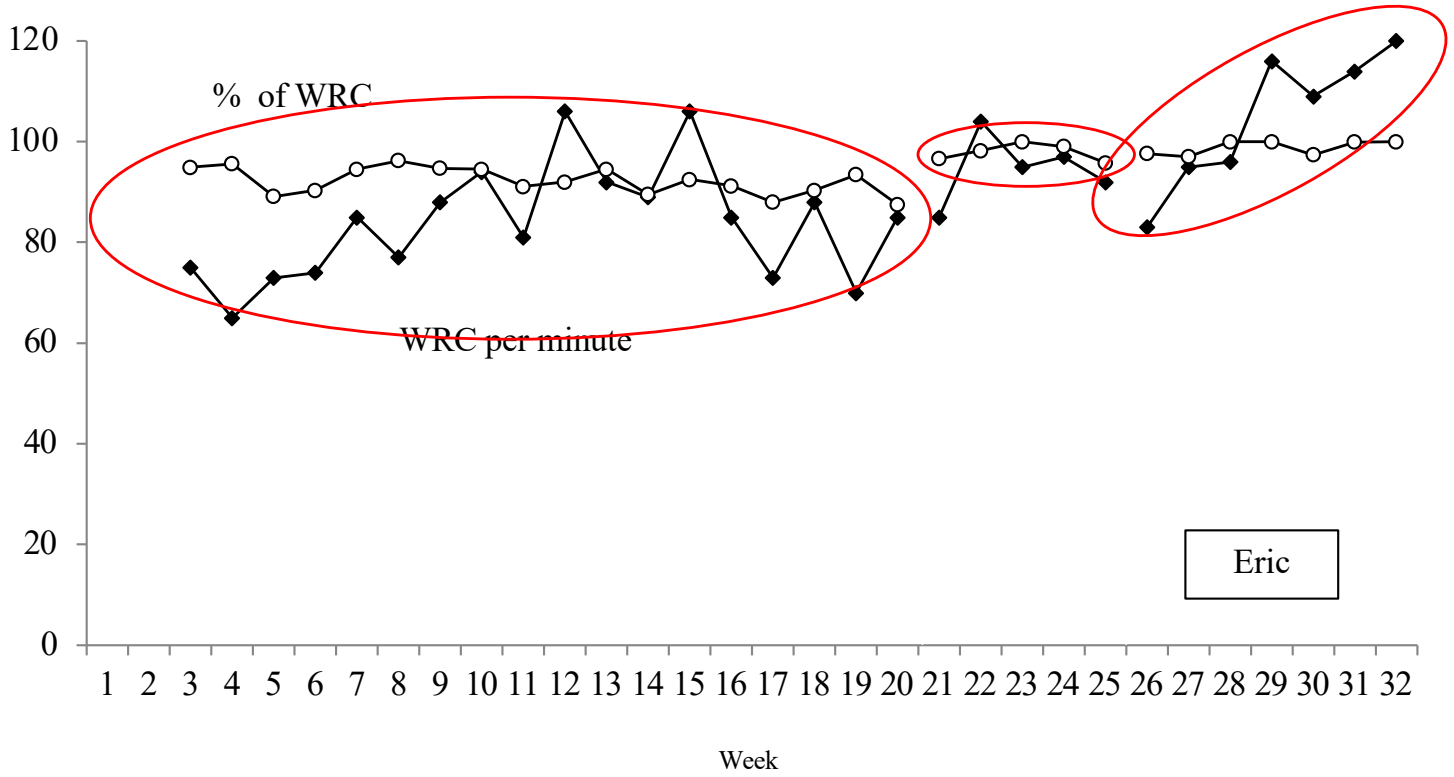
% of WRC
WRC per minute
Ryan
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
Week


120
100
80
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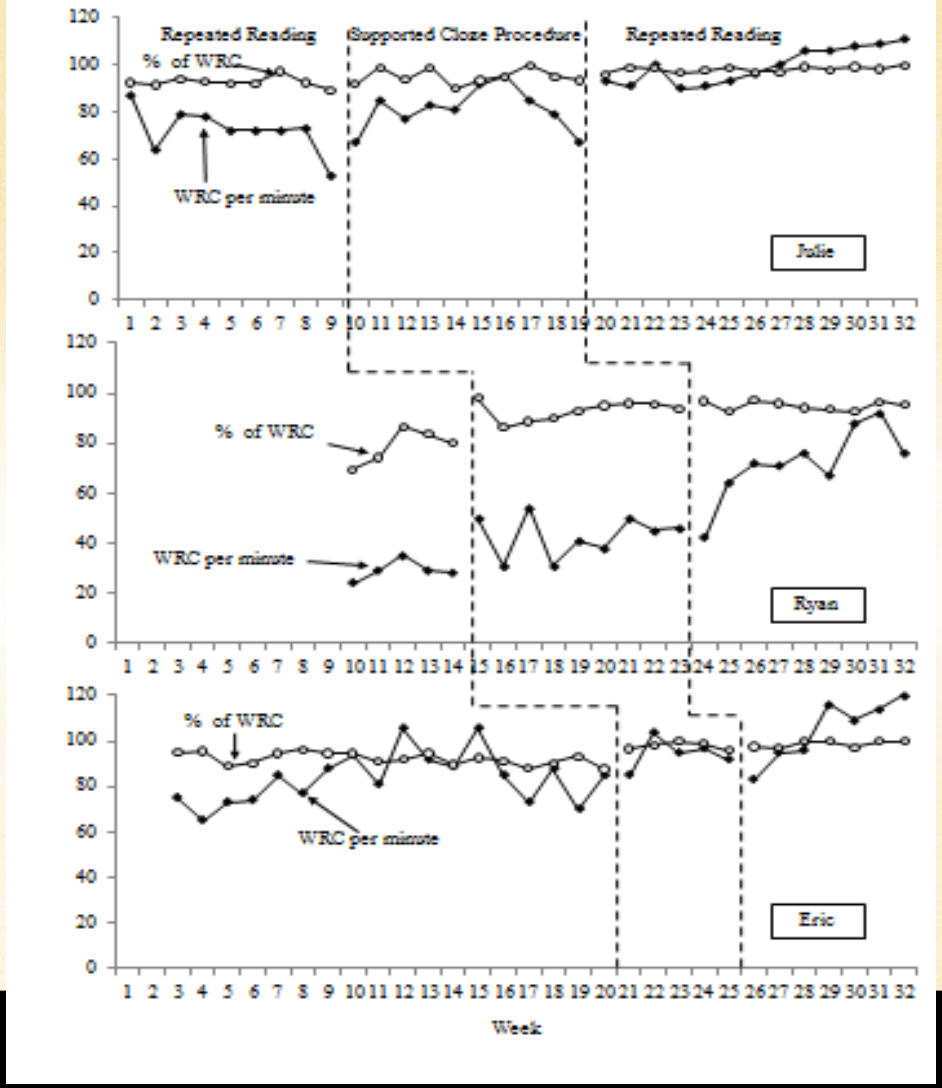
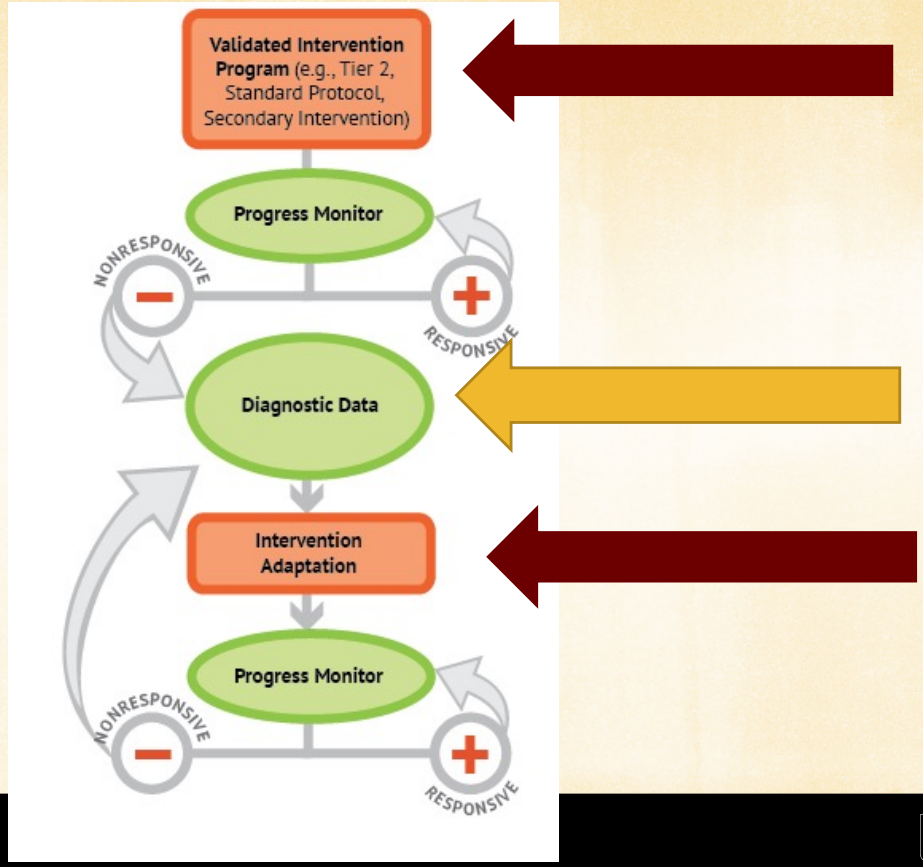
% of WRC
WRC per minute
Eric
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
Week


Repeated Reading
Supported Cloze Procedure
Repeated Reading
% of WRC
WRC per minute
Julie
Ryan
Eric
Week

Learning Process

Framework to Intensify Interventions



Problem Analysis

At the end of the lesson, can the kid do it? (Learn it in the first place?)

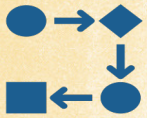
If the kid learns it, does she remember it the next day?

If she remembers it, can she apply or use it?

Acquire

Validated protocol – different target

Adaption - Acquisition rate or make stimuli more salient and errorless



Retain

Validated protocol - Increased repetition within lesson (IR)

Adaption - Increased repetition across lessons or frequent review

Generalize

Validated protocol – comprehension or application interventions

Adaption - Integrate a variety of forms of the letters, words, numbers etc., including those similar to how they are presented during assessment into intervention sessions

Acquire – Not learning it in the first place

Validated Program – Right Target

Modification – Errorless and Salient

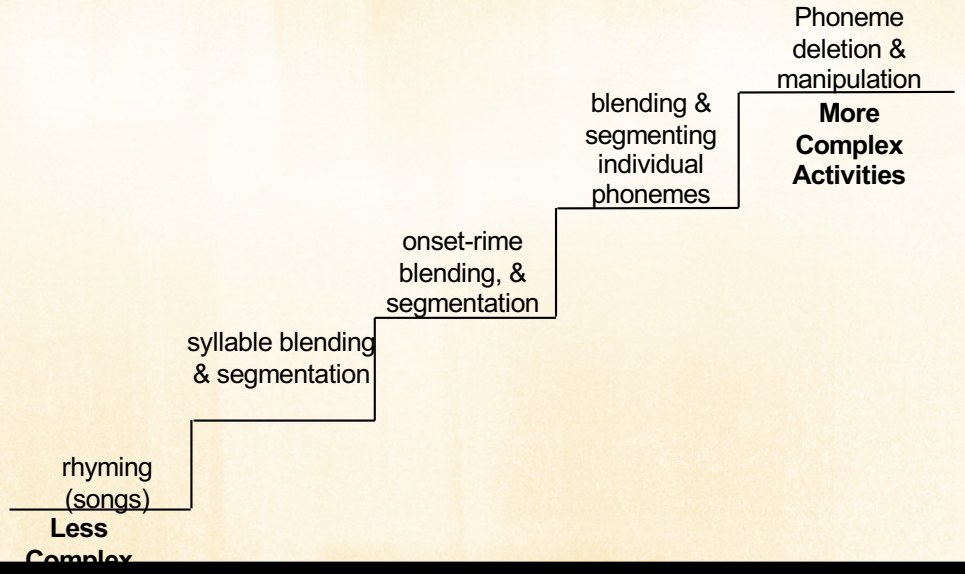
Right Target

Decoding rather than fluency? PA rather than decoding?

Easier math objective?

Within domain?

- Easier text
- Decoding inventory



Acquire – Not learning it in the first place

Validated Program – Right Target

Modification – Errorless and Salient

Errorless - Listening Passage Preview

1. Select a passage to student that he/she will read for class
2. Present the text and tell him or her that you will read aloud while he or she follows along. This will help him or her read the page better.
3. Tell the student to follow along with finger
4. Read the text at a comfortable rate while monitoring if child is following
5. Have the student read the passage aloud

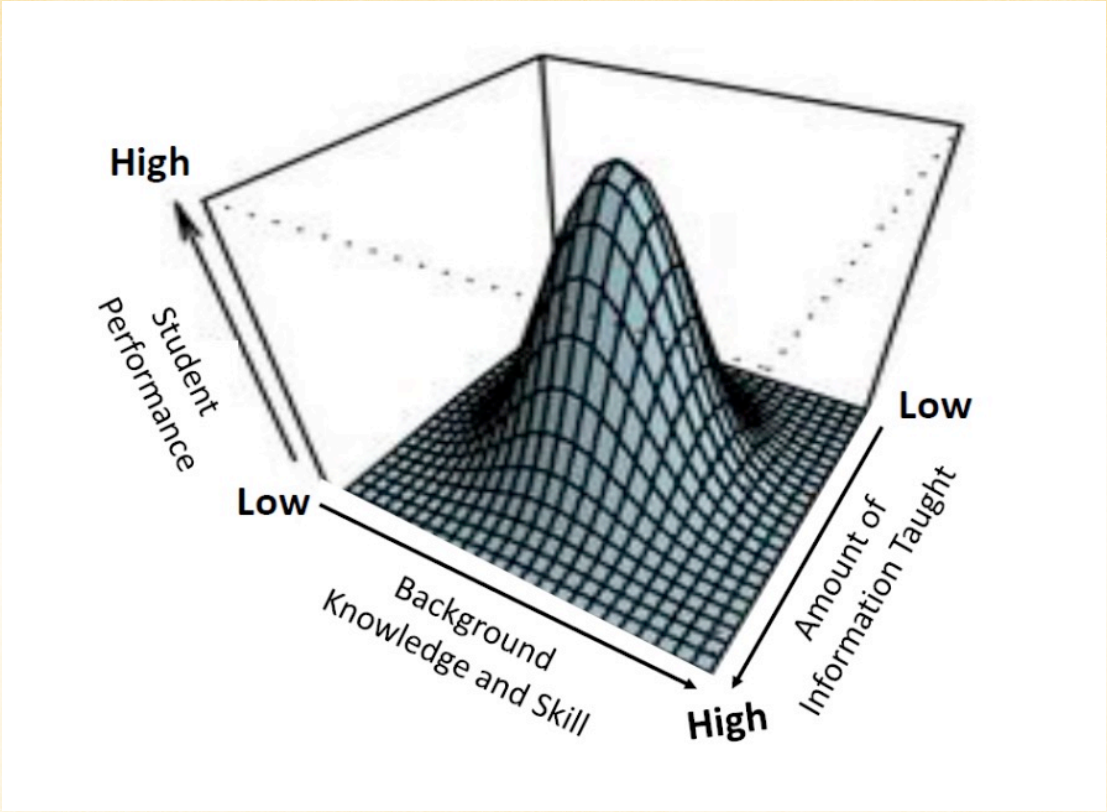
Errorless - Phrase Drill

Encourages words by word reading

Strong error correction technique

Likely to generalize learned words

Takes more time than other approaches to error correction


High
Student Performance
Low
Low
Background Knowledge and Skill
High
Amount of Information Taught

Application of Interference

Rate of Acquisition

- The amount of new information a student can learn before interference occurs.

Rate of Retention

- The amount of previously learned data that can be recalled at a later time.

Acquisition Rates

	Session I		Session II		
Grade	M	SD	M	SD	r
First	3.23	1.15	2.94	1.21	.76*
Third	5.17	2.07	5.40	2.40	.91*
Fifth	6.63	1.97	6.90	1.92	.91*
Total	4.99	2.25	5.05	2.50	.93*

*p<.01

(Burns, 2001)

Criterion-Related Validity

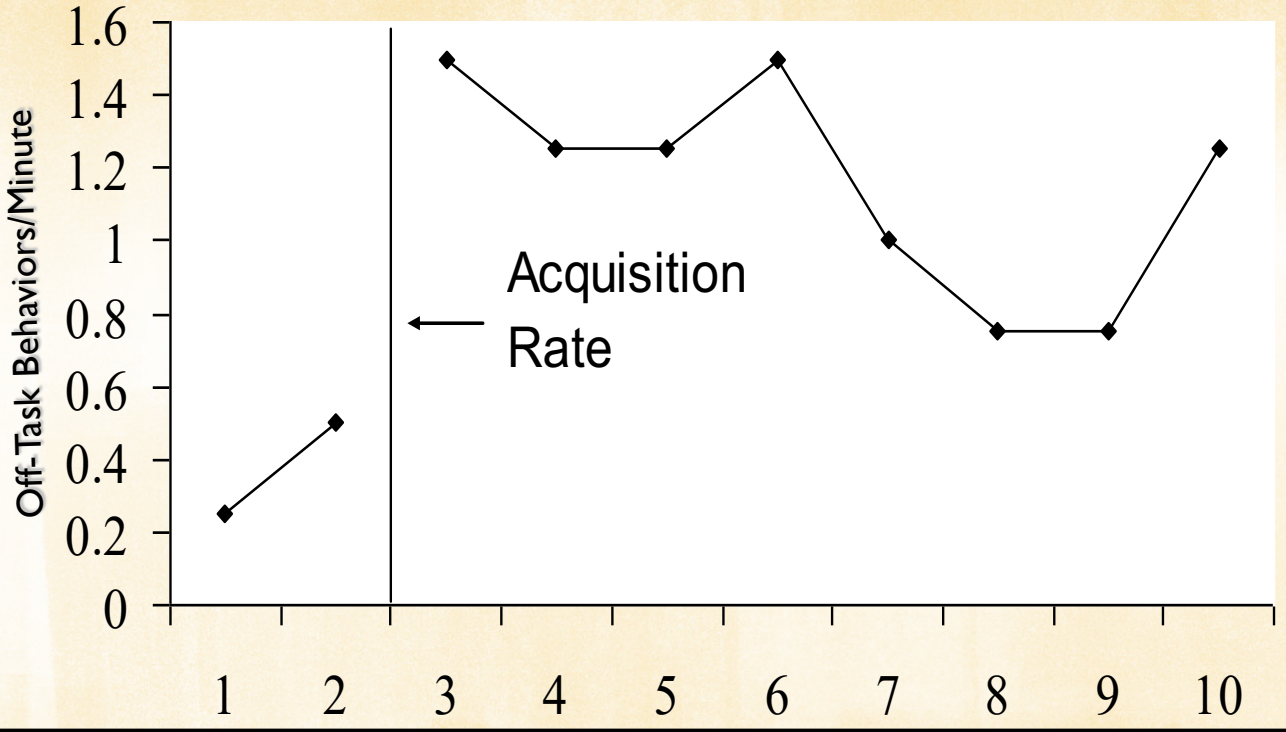
Table 1

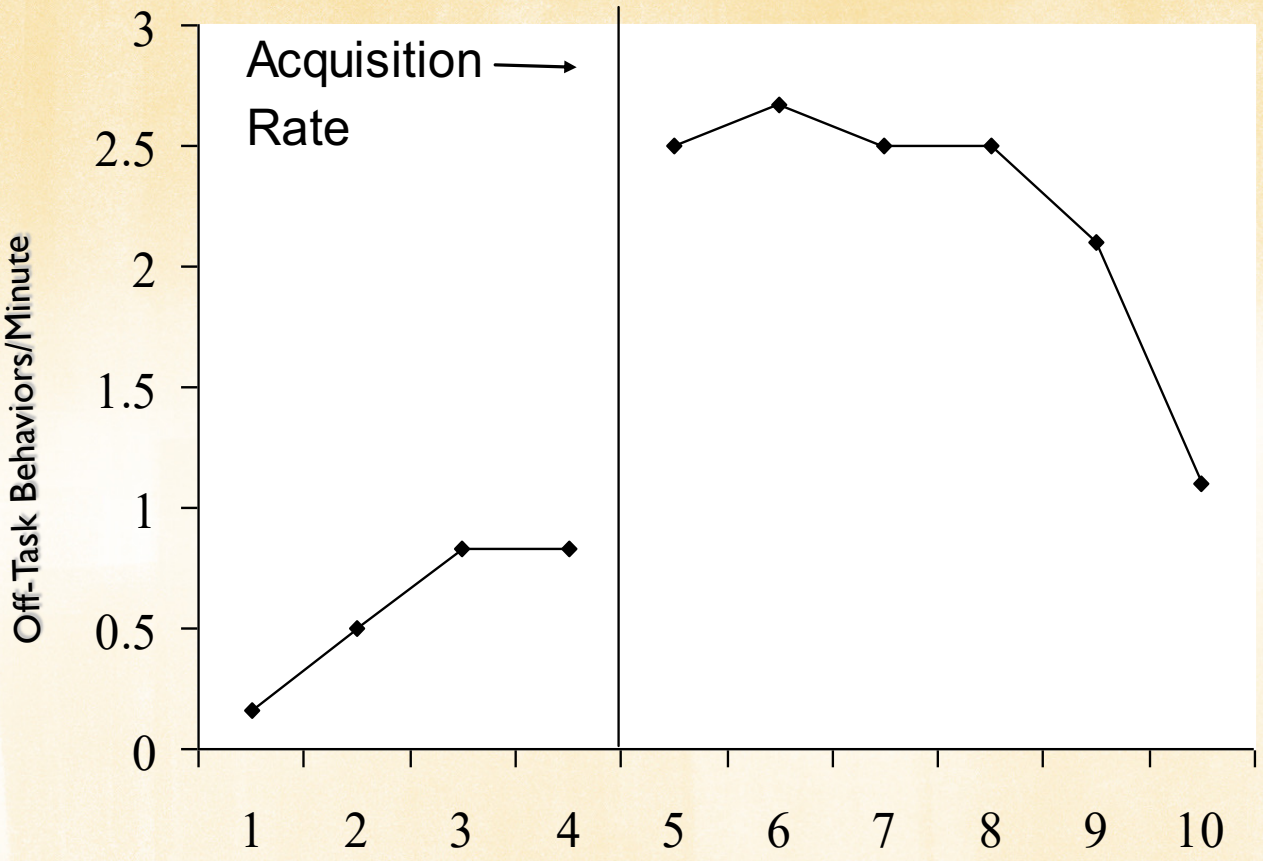
Means, Standard Deviations, and Correlation Coefficients for AR and TOMAL Data

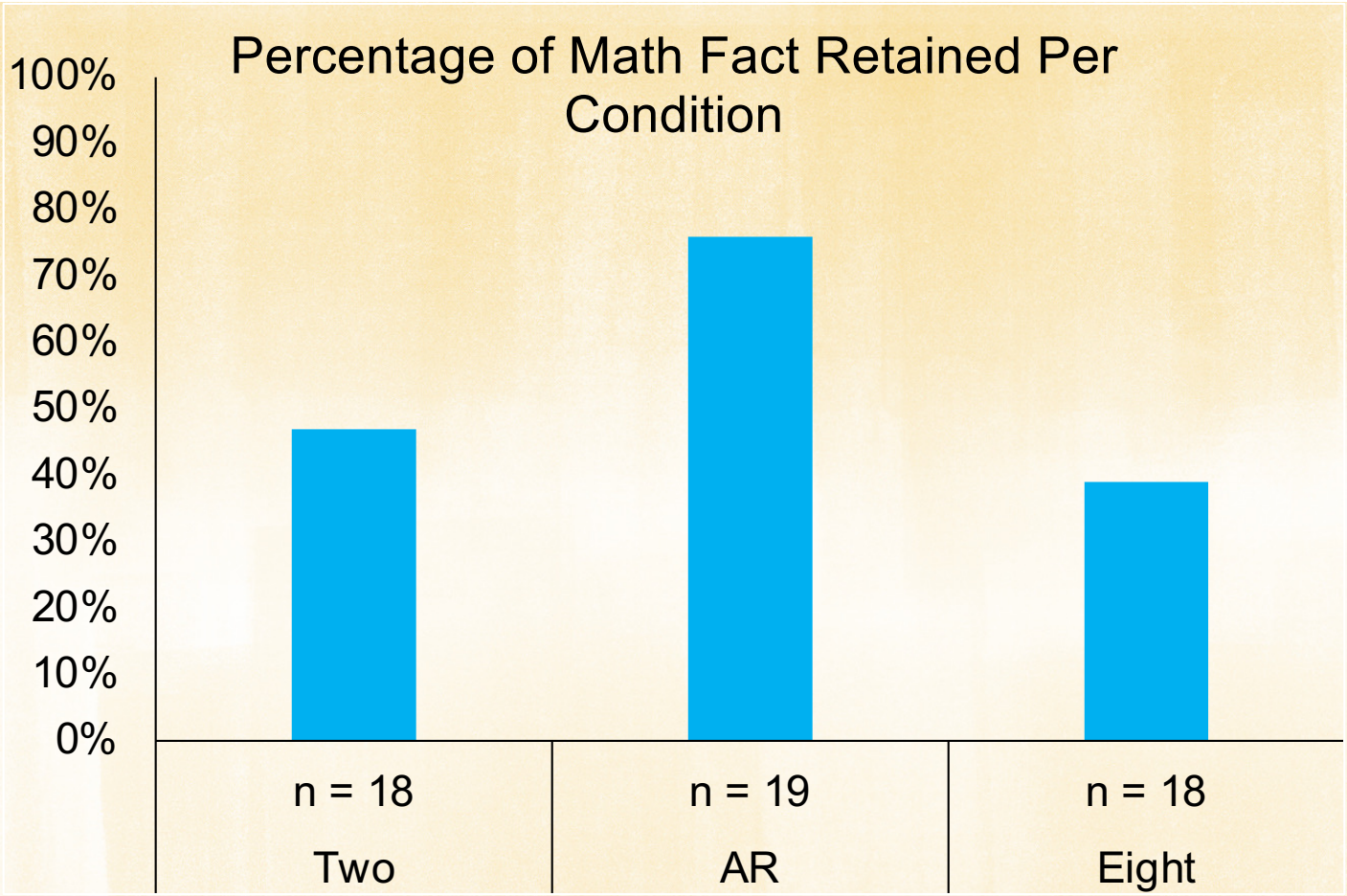
	M	*D*	Obtained *r* with AR	Corrected *r* with AR
Acquisition Rate	6.0	2.7	NA	NA
Verbal Memory Index	99.3	14.1	.57*	.58*
Nonverbal Memory Index	100.8	14.7	.71*	.72*
Composite Memory Index	100.3	14.1	.68*	.70*

* $p < .01$.

(Burns & Mosack, 2005)


Off-Task Behaviors/Minute
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Acquisition
Rate
1
2
3
4
5
6
7
8
9
10
Word Number


Acquisition
Rate
Off-Task Behaviors/Minute
3
2.5
2
1.5
1
0.5
0
1
2
3
4
5
6
7
8
9
10
Word Number



3rd and 4th graders

Burns, Zaslofsky, Maki, & Kwong, 2018

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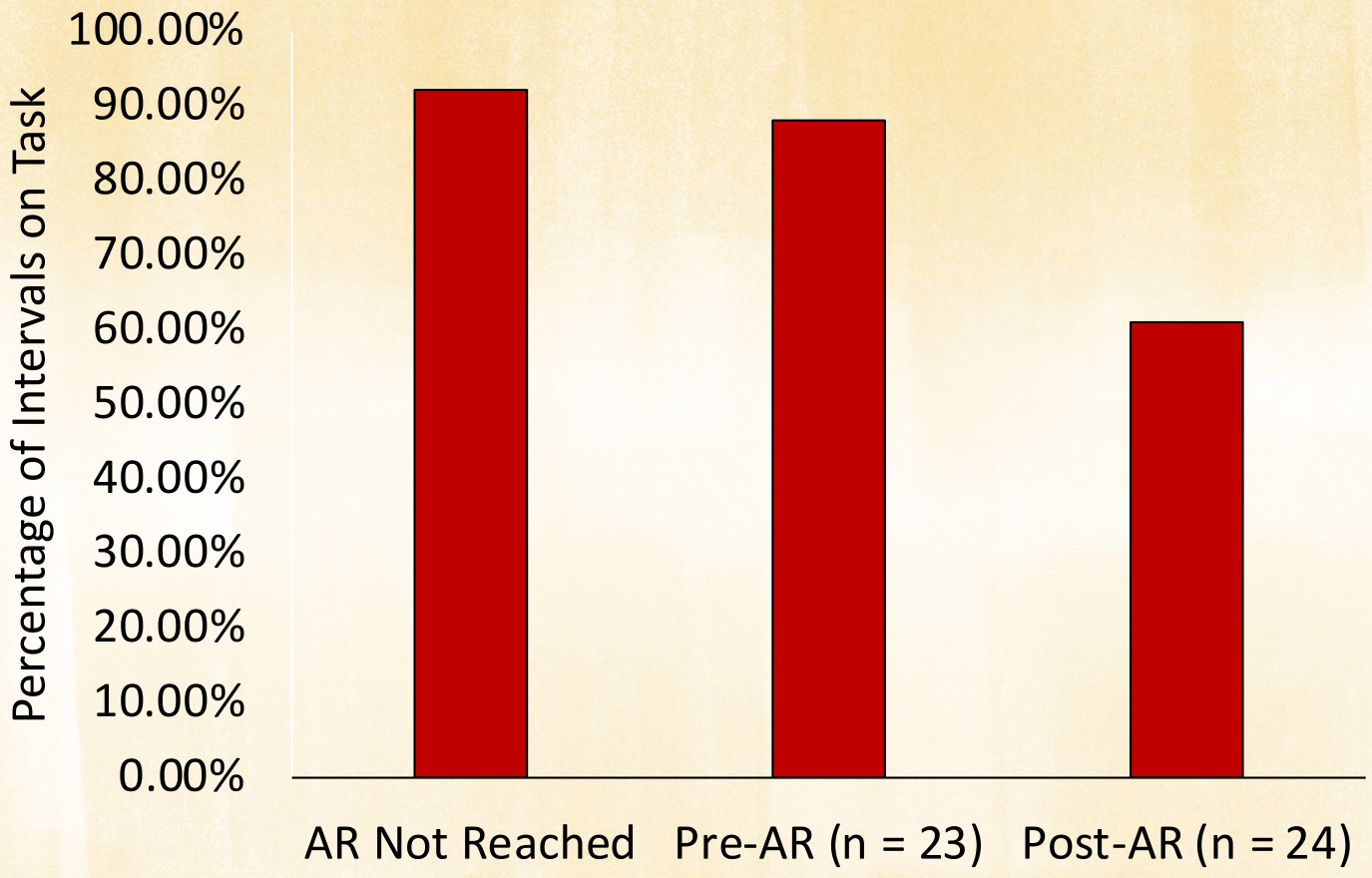
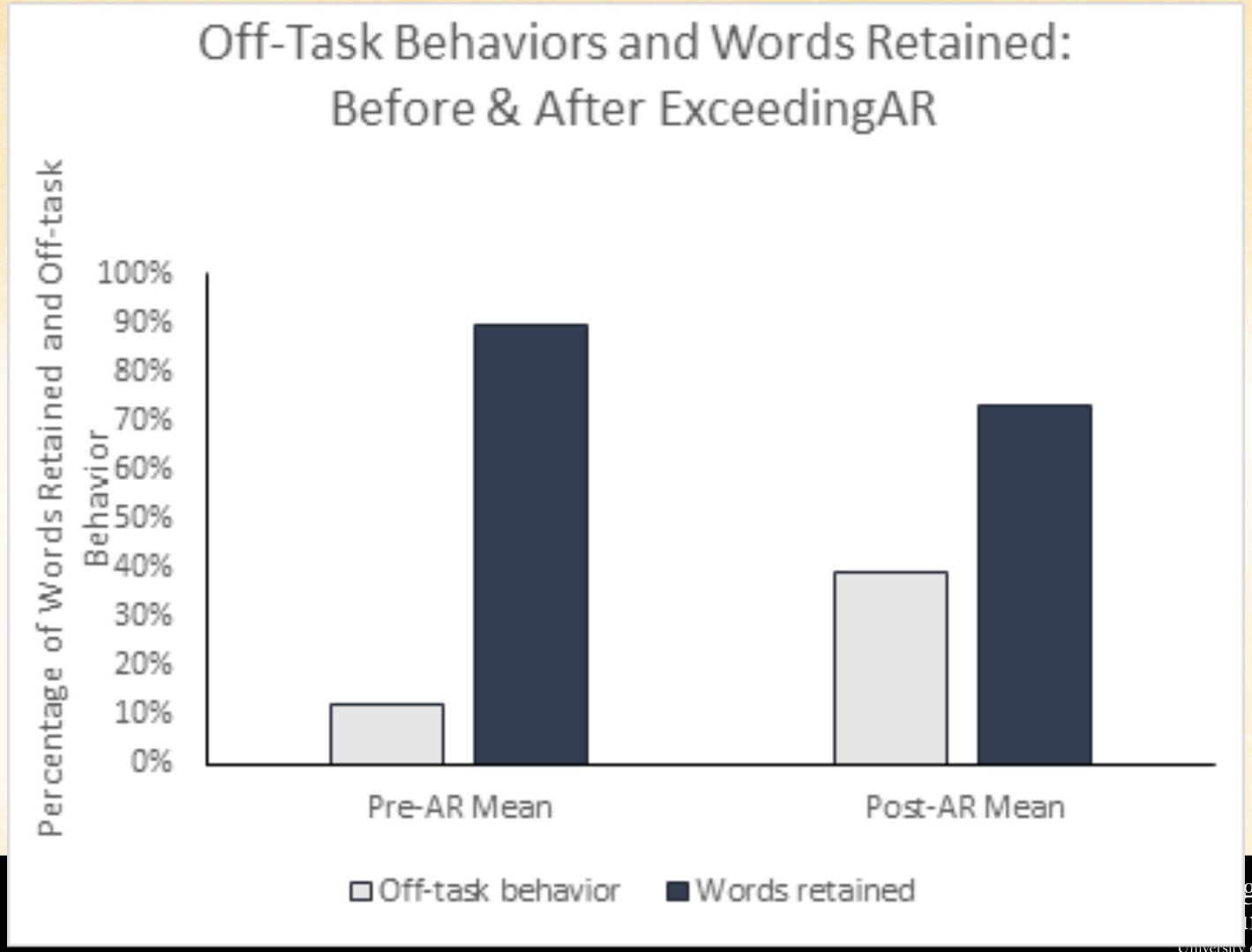
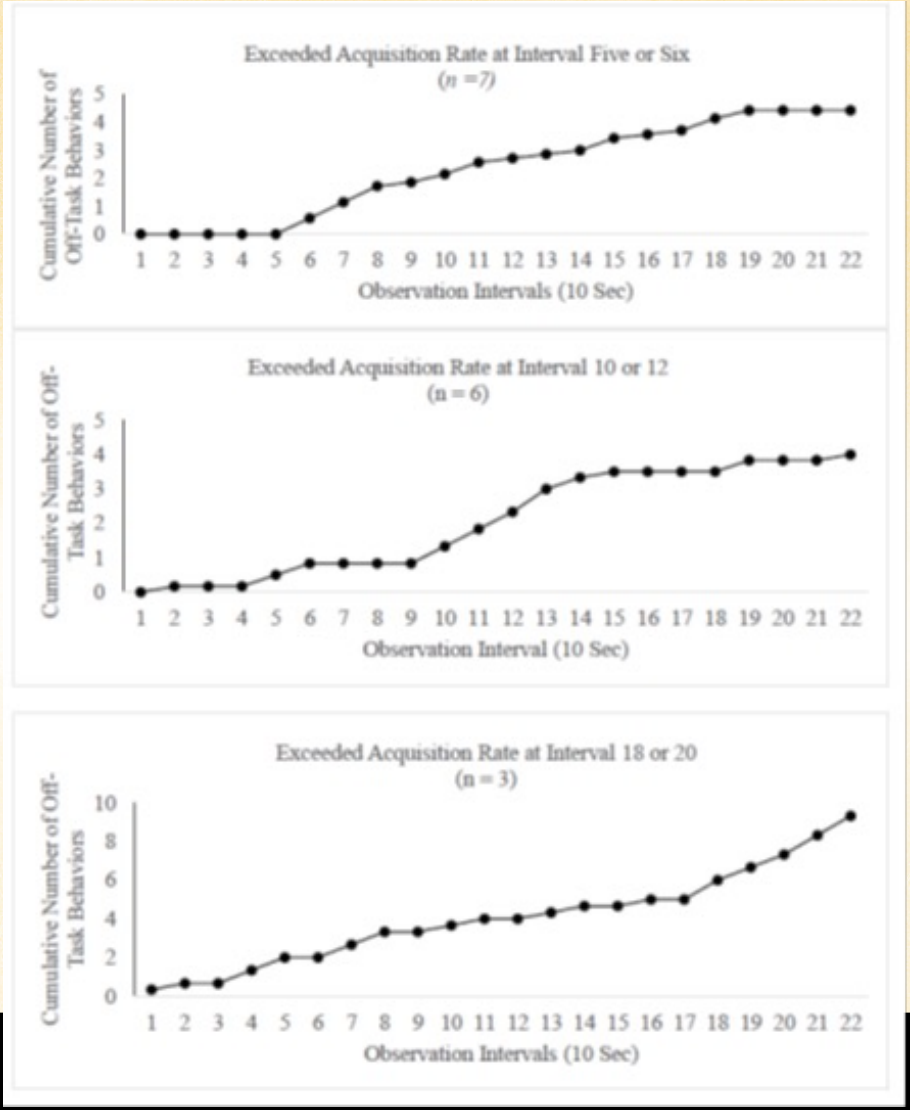

Percentage of Intervals on Task
100.00%
90.00%
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
AR Not Reached
Pre-AR (n = 23)
Post-AR (n = 24)


Off-Task Behaviors and Words Retained:
Before & After ExceedingAR
Percentage of Words Retained and Off-task Behavior
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Pre-AR Mean
Post-AR Mean
Off-task behavior
Words retained


Exceeded Acquisition Rate at Interval Five or Six
(n =7)
Cumulative Number of Off-Task Behaviors
0 1 2 3 4 5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Observation Intervals (10 Sec)
Exceeded Acquisition Rate at Interval 10 or 12
(n = 6)
Cumulative Number of Off-Task Behaviors
0 1 2 3 4 5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Observation Interval (10 Sec)
Exceeded Acquisition Rate at Interval 18 or 20
(n = 3)
Cumulative Number of Off-Task Behaviors
0 2 4 6 8 10
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Observation Intervals (10 Sec)

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Retention – Not remembering what was learned

Validated Program – Increase repetition within session

- Incremental Rehearsal
- Repeated Reading
- Word Sorts

Modification – Increase repetition across sessions

- Pocket words
- Recall practice effect

Incremental Rehearsal

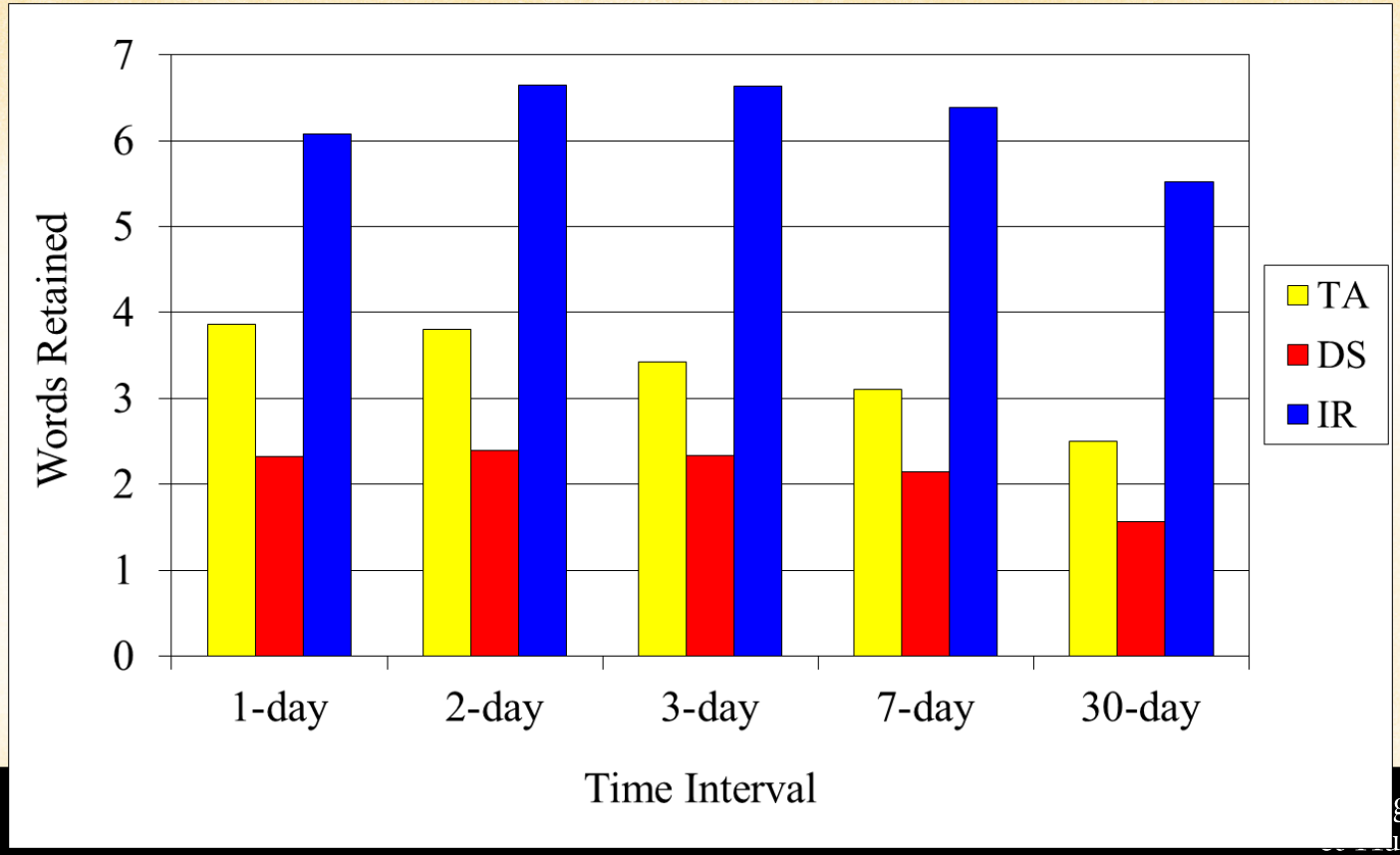
Developed by Dr. James Tucker (1989)

Folding in technique

Rehearses one new item at a time

Uses instructional level and high repetition

Mean Number of Word Retained



Incremental Rehearsal Effectiveness

Bunn, R., Burns, M. K., Hoffman, H. H., & Newman, C. L. (2005). Using incremental rehearsal to teach letter identification with a preschool-aged child. *Journal of Evidence Based Practice for Schools, 6,* 124-134.

Burns, M. K. (2007). Reading at the instructional level with children identified as learning disabled: Potential implications for response–to-intervention. *School Psychology Quarterly, 22*, 297-313.

Burns, M. K. (2005). Using incremental rehearsal to practice multiplication facts with children identified as learning disabled in mathematics computation. *Education and Treatment of Children, 28,* 237-249.

Burns, M. K., Dean, V. J., & Foley, S. (2004). Preteaching unknown key words with incremental rehearsal to improve reading fluency and comprehension with children identified as reading disabled. *Journal of School Psychology, 42,* 303-314.

Codding, R. S., Archer, J., & Connell, J. (2010). A systematic replication and extension of using incremental rehearsal to improve multiplication skills: An investigation of generalization. *Journal of Behavioral Education, 19,* 93-105.

Matchett, D. L., & Burns, M. K. (2009). Increasing word recognition fluency with an English language learner. *Journal of Evidence Based Practices in Schools, 10,* 194-209.

Nist, L. & Joseph L. M. (2008). Effectiveness and efficiency of flashcard drill instructional methods on urban first-graders' word recognition, acquisition, maintenance, and generalization. *School Psychology Review, 37,* 294-208.

Peterson, M., Brandes, D., Kunkel, A., Wilson, J., Rahn, N., Egan, A., & McComas, J. J. (2014). Teaching letter sounds to kindergarten English language learners using Incremental Rehearsal. *Journal of School Psychology, 52,* 97-107.

Repeated Readings

One of the oldest and most well-researched interventions

High OTR

Generalizes to passage and similar ones

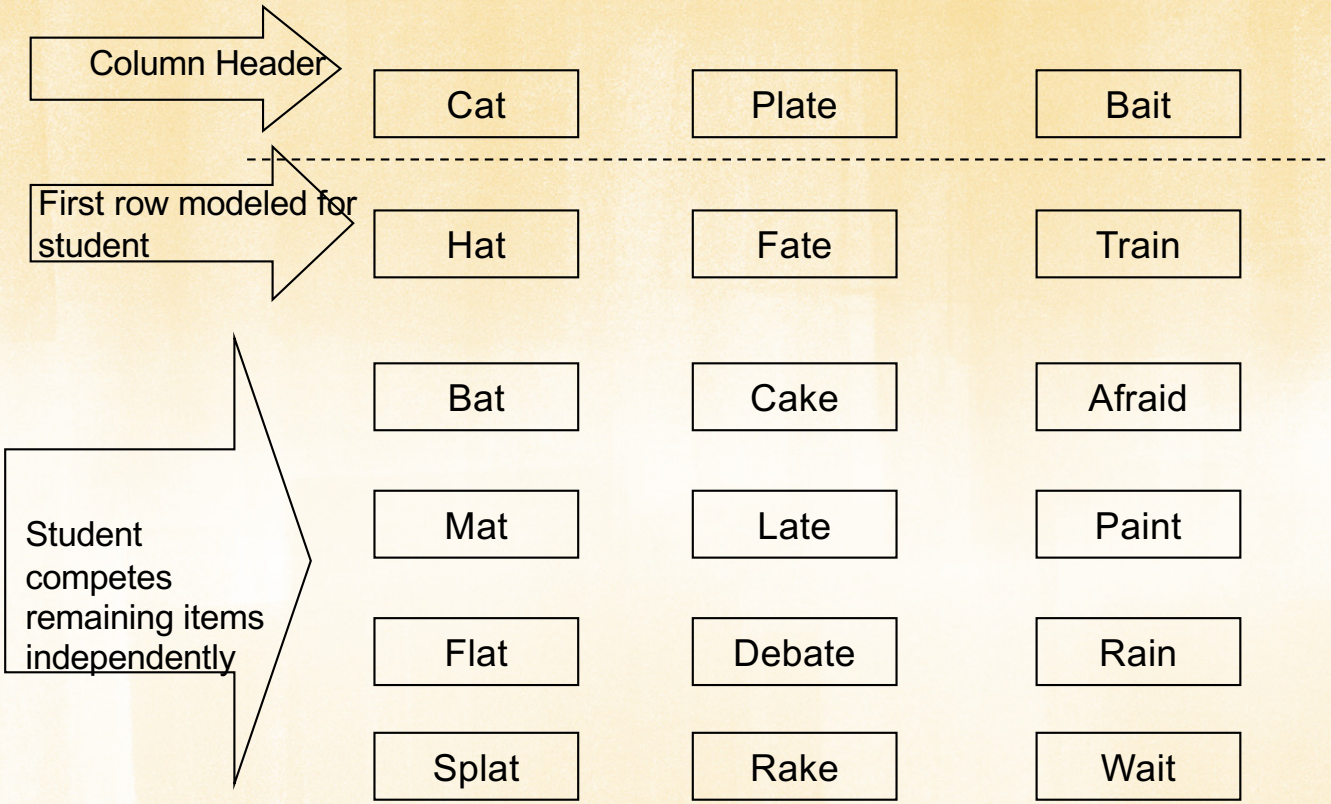
Repeated Reading

Objective: To increase fluent reading on passages for students who
- read with high accuracy
- show benefit from repeated practice on the same passage

Materials: 2 copies each of texts that the student can read with at least 95% accuracy
Stop-watch
Pencil/pen for teacher to mark errors

Sequence:

1. Teacher explains that students will be reading a passage multiple times to work on increasing fluency (fluency is rate and accuracy and expression – not just speed)
2. Teacher gives copies of passages to student
3. (Optional Step) Student whisper reads passage to him/herself while tracking with his/her finger to figure out unknown words. Students may ask about any unknown words.
4. Teacher explains that for the first reading out-loud, the student will read for 1 minute.
5. Teacher says "Begin" (not "Start") and starts stop-watch.
6. Student reads passage out-loud.
7. Teacher marks errors and monitors stopwatch. At one minute, teacher says "Stop" and marks the last word read by the student.
8. Teacher records number of correct words per minute and graphs results, showing the graph to the student.
9. Teacher provides standard error correction for each word the student read in error. ("That word is _____. What word?" The student repeats the word. Teacher says, "Yes. That word is _____." Student goes back to the beginning of the sentence to begin again.)
10. Repeat steps 5-9 at least two more times for a minimum of 3 timed readings (student reads, teacher times, words read correctly are recorded, and errors are corrected). Additional repetitions may be completed if student's fluency continues to improve through these readings.


Column Header
Cat
Plate
Bait
First row modeled for student
Hat
Fate
Train
Bat
Cake
Afraid
Mat
Late
Paint
Student competes remaining items independently
Flat
Debate
Rain
Splat
Rake
Wait

Retention – Not remembering what was learned

Validated Program – Increase repetition within session

- Incremental Rehearsal
- Repeated Reading
- Word Sorts

Modification – Increase repetition across sessions

- Pocket words
- Recall practice effect

Increase Repetition

Increase number of reads for repeated reading

More examples in word sorts

More items in C-C-C and practice sheets

Retention Intervention

Short sessions

Twice per day

Test retention at the end of each day

Start with review

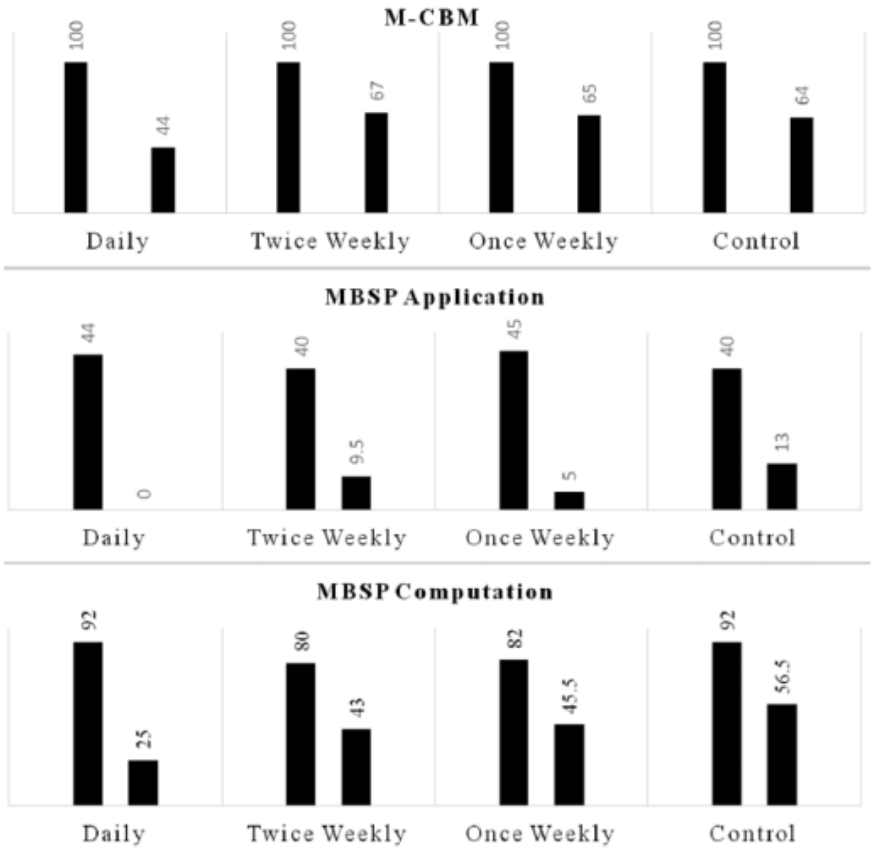


FIGURE 1 Each panel represents the percentage of participants scoring in the at-risk range during pre (week 1) and post (week 5) test. The first panel represents curriculum-based measures in mathematics (M-CBM) results, the second panel represents Monitoring Basic Skills Progress application (MBSP-APP) and the third panel represents Monitoring Basic Skills Progress computation (MBSP-COMP).

Retrieval Effect

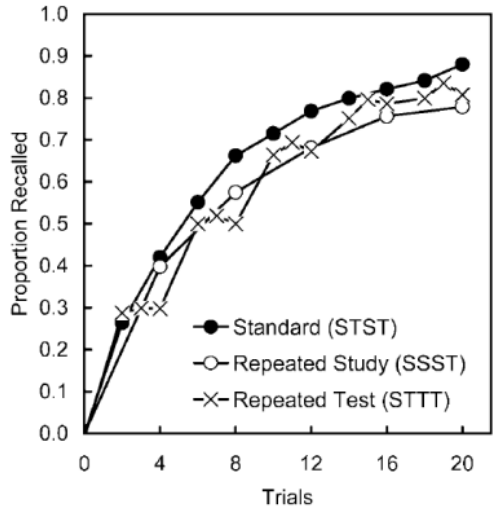


Fig. 3. Proportion of words recalled across trials in standard, repeated-study, and repeated-testing conditions. The shorthand condition labels indicate the order of study (S) and test (T) periods. Data are from Karpicke and Roediger (2006b).

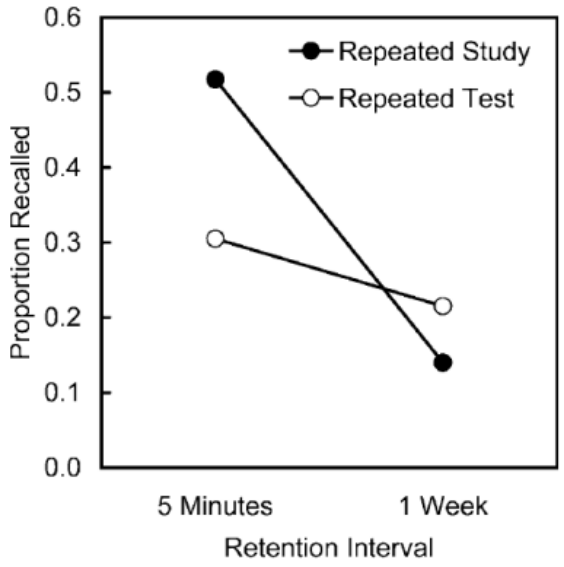


Fig. 5. Proportion of words recalled on immediate (5-min) and delayed (7-day) retention tests after repeated studying or repeated testing. Data are estimated from Wheeler, Ewers, and Buonanno (2003).

Generalization – Not applying what was learned

Validated Program

- Concept Map
- Reciprocal Teaching

Modification – Teach how you want them to use it

Comprehension is affected by

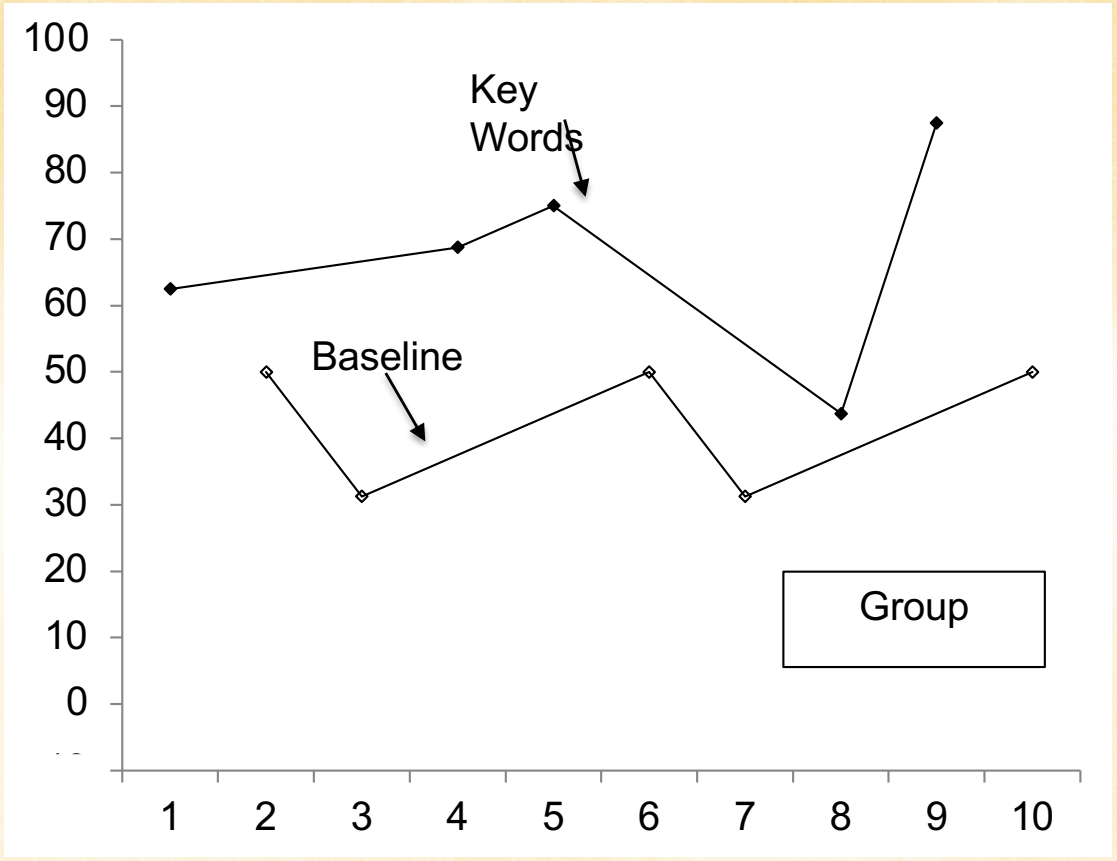
1 & 2) Background knowledge and vocabulary

3) Correct inferences about reading

4) Word reading skill

5) Strategy use

(Cromley & Azevedo, 2007)


100
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
Key
Words
Baseline
Group

Concept Maps

http://www.schrockguide.net/concept-mapping.html

https://www.eduplace.com/graphicorganizer/

https://www.teachervision.com/graphic-organizers/printable/6293.html

Generalization – Not applying what was learned

Validated Program

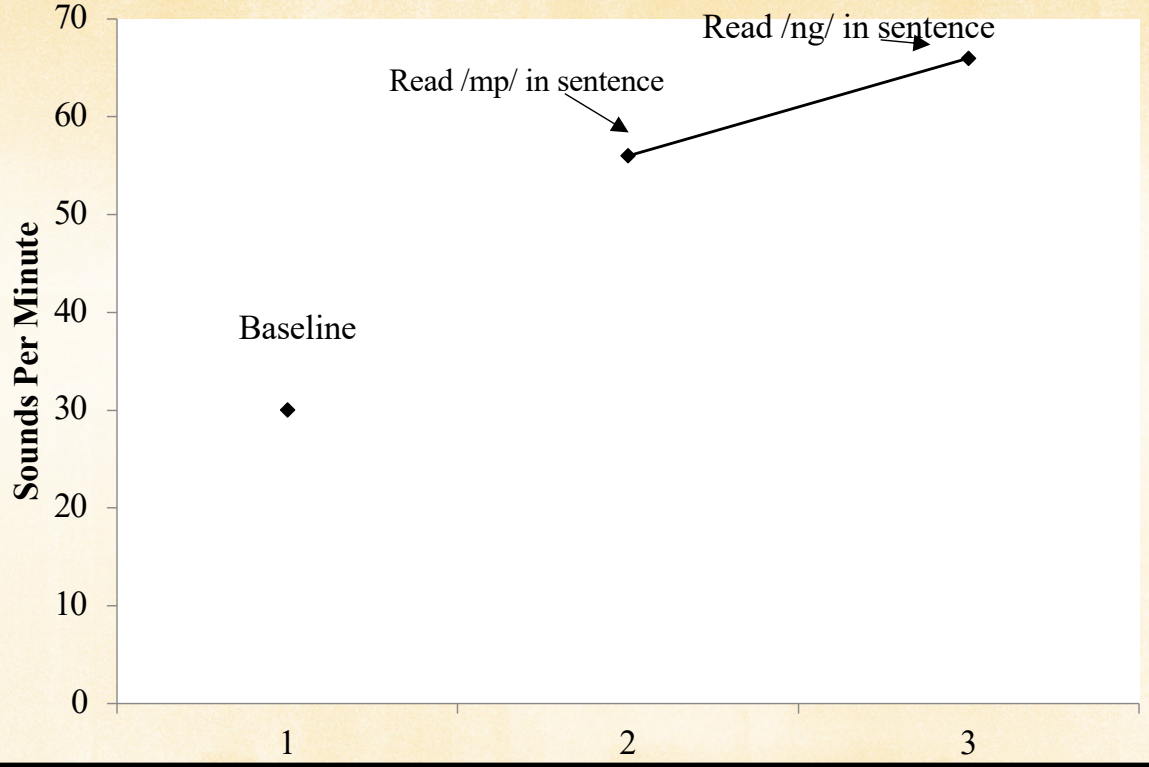
- Concept Map
- Reciprocal Teaching

Modification – Teach how you want them to use it

Generalization

Integrate a variety of forms of the letters, words, numbers etc., including those similar to how they are presented during assessment into intervention sessions

Generalization



Results

Tier 2

Student	Measure	# of Weeks Pre BEA	Pre BEA Slope	# of Weeks Post-BEA	Post BEA Slope	Change in Slope
1	WRC	20	0.25	2	8.00	7.75
2	WRC	12	-0.64	8	0.55	1.19
3	WRC	10	1.50	14	1.68	0.18
4	LSC	22	-0.15	8	0.12	0.26
5	WRC	6	3.00	8	3.43	0.43
6	WRC	10	-3.05	9	3.03	6.08
7	WRC	16	0.07	7	0.46	0.39
8	WRC	14	0.71	9	2.78	2.07
9	WRC	8	0.90	8	1.06	0.16
10	LSC	20	1.32	2	8.00	6.68
11	WRC	8	-0.25	12	0.08	0.33
12	WRC	18	0.11	6	1.77	1.66
13	WRC	18	0.44	6	3.03	2.59
14	WRC	6	0.00	6	-0.40	-0.40
15	LSC	22	0.29	9	1.08	0.80
16	LSC	14	0.82	7	2.93	2.11
17	LSC	12	0.23	8	2.52	2.30

cation
elopment

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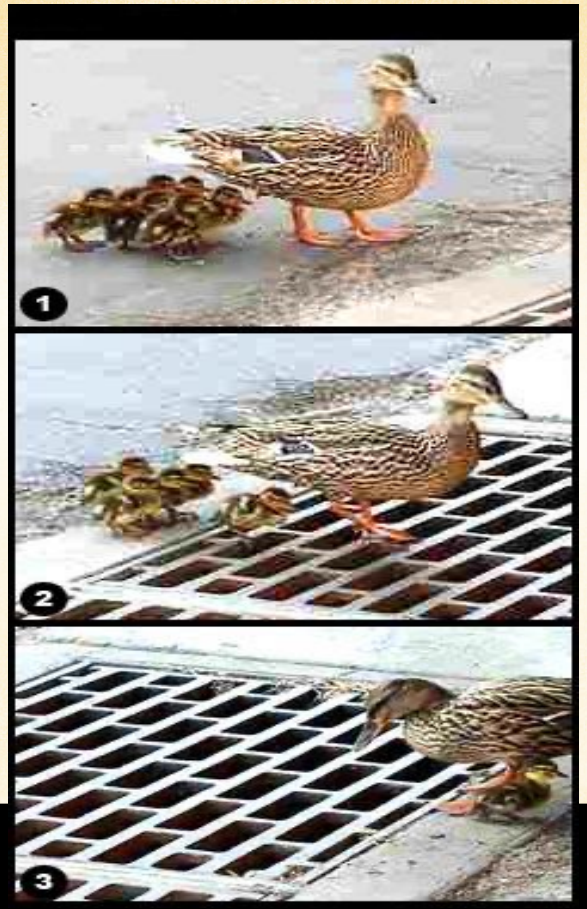
“Sometimes the questions are complicated and the answers are simple.”

— Dr. Seuss

Does Leadership Matter?

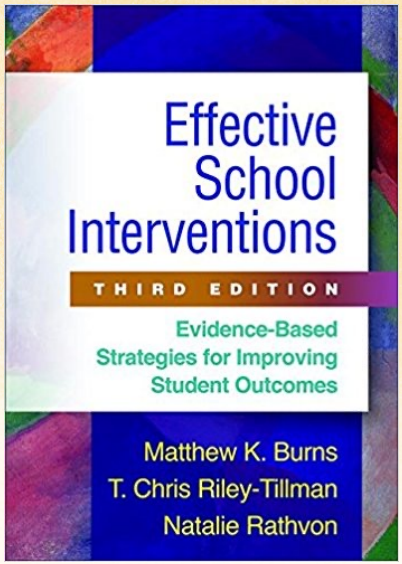
Does Leadership Matter?

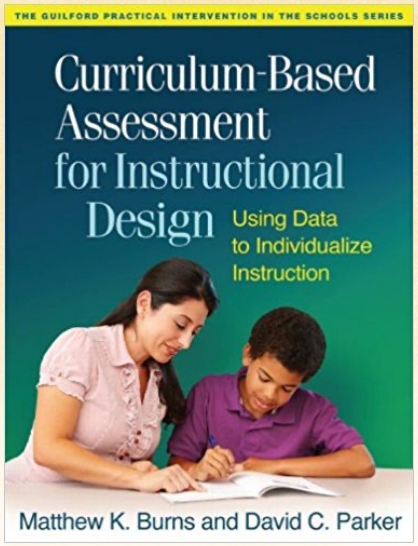
YES!



Change in education is like:

committing suicide by
standing in front of a glacier


Effective School Interventions
THIRD EDITION
Evidence-Based Strategies for Improving Student Outcomes
Matthew K. Burns
T. Chris Riley-Tillman
Natalie Rathvon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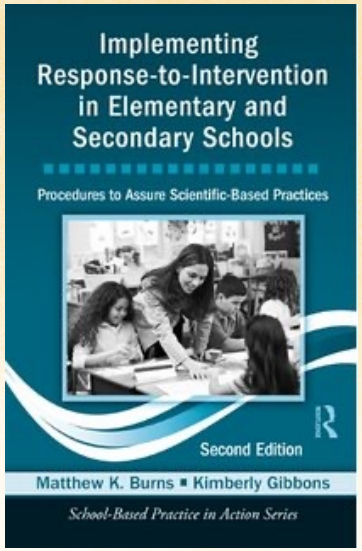
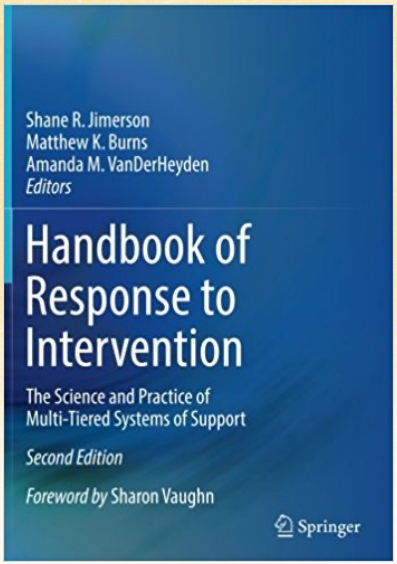
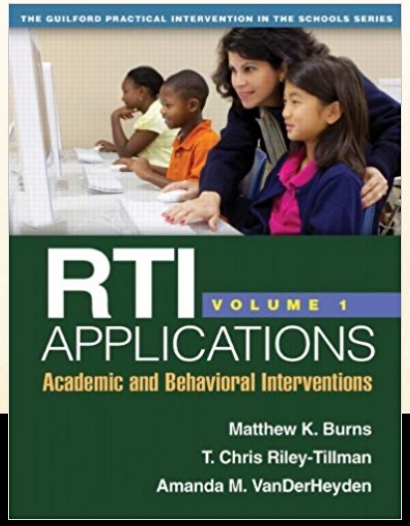
Curriculum-Based Assessment for Instructional Design
Using Data to Individualize Instruction
Matthew K. Burns and David C. Parker


Implementing Response-to-Intervention in Elementary and Secondary Schools
Procedures to Assure Scientific-Based Practices
Second Edition
Matthew K. Burns ▪ Kimberly Gibbons
School-Based Practice in Action Series


Shane R. Jimerson
Matthew K. Burns
Amanda M. VanDerHeyden
Editors
Handbook of Response to Intervention
The Science and Practice of Multi-Tiered Systems of Support
Second Edition
Foreword by Sharon Vaughn
Springer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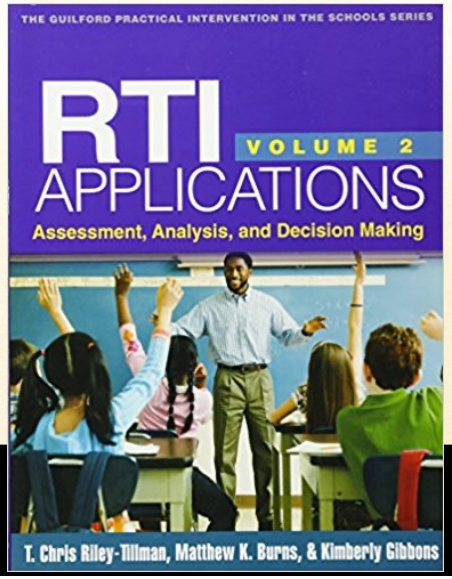
RTI VOLUME 1 APPLICATIONS
Academic and Behavioral Interventions
Matthew K. Burns
T. Chris Riley-Tillman
Amanda M. VanDerHeyden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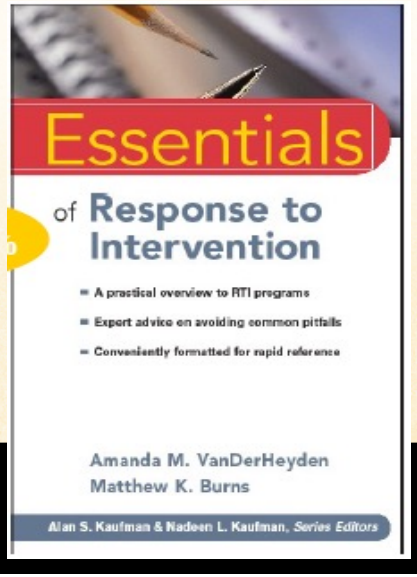
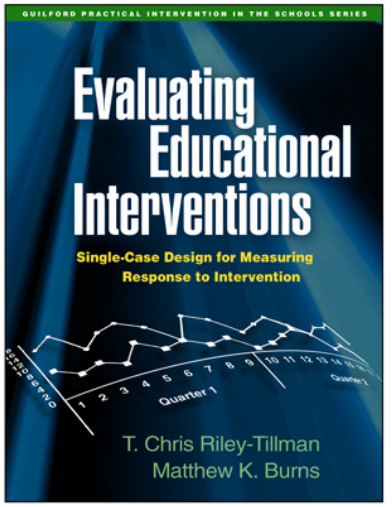
RTI VOLUME 2 APPLICATIONS
Assessment, Analysis, and Decision Making
T. Chris Riley-Tillman, Matthew K. Burns, & Kimberly Gibbons


Essentials of Response to Intervention
▪ A practical overview to RTI programs
▪ Expert advice on avoiding common pitfalls
▪ Conveniently formatted for rapid reference
Amanda M. VanDerHeyden
Matthew K. Burns
Alan S. Kaufman & Nadeen L. Kaufman, Series Editors


GUILFORD PRACTICAL INTERVENTION IN THE SCHOOLS SERIES
Evaluating Educational Interventions
Single-Case Design for Measuring Response to Intervention
Quarter 1
T. Chris Riley-Tillman
Matthew K. Burns

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