

Effective Early Literacy Intervention for Students with Disabilities: Building Reading Fluency and Comprehension

Greg Benner, Keith Smolkowski, Stephanie Al
Otaiba, Jill Allor, and June Preast



CEC 2026

SPECIAL EDUCATION
CONVENTION & EXPO

SALT LAKE CITY

MARCH 11-14, 2026

Agenda

- Why
- Study
- Intervention
- Immediate Results
- Maintenance Results
- Discussion
- Questions



Project Intensity Team



Friends on the Block

Research and Development

Acknowledgments: Support for carrying out research on the Friends on the Block curriculum was provided by grants H324K040011, R324A130102, and R324A200151 from the Institute of Education Sciences. The views expressed herein are those of the authors and have not been reviewed or approved by the granting agency. Jill Allor and Stephanie Al Otaiba acknowledge a financial interest in the Friends on the Block books and curriculum. Any inquiries should be directed to the Office of Research Compliance at Southern Methodist University.

Why



CEC 2026

SPECIAL EDUCATION
CONVENTION & EXPO

SALT LAKE CITY

MARCH 11-14, 2026

The Pervasive Narrative of the 95%

- Where does this narrative come from?
 - Mathes et al., 2005; Moats, 2020; Torgesen, 2004; Al Otaiba & Fuchs, 2006
- Is it true?
- Who can learn to read?
- We are working to rewrite the narrative of 95%!
 - Allor et al., 2014; Browder, Ahlgrim-Delzell, Courtade, Gibbs, & Flowers, 2008; Connor, Alberto, Compton, & O'Connor, 2014; Lemons et al., 2015

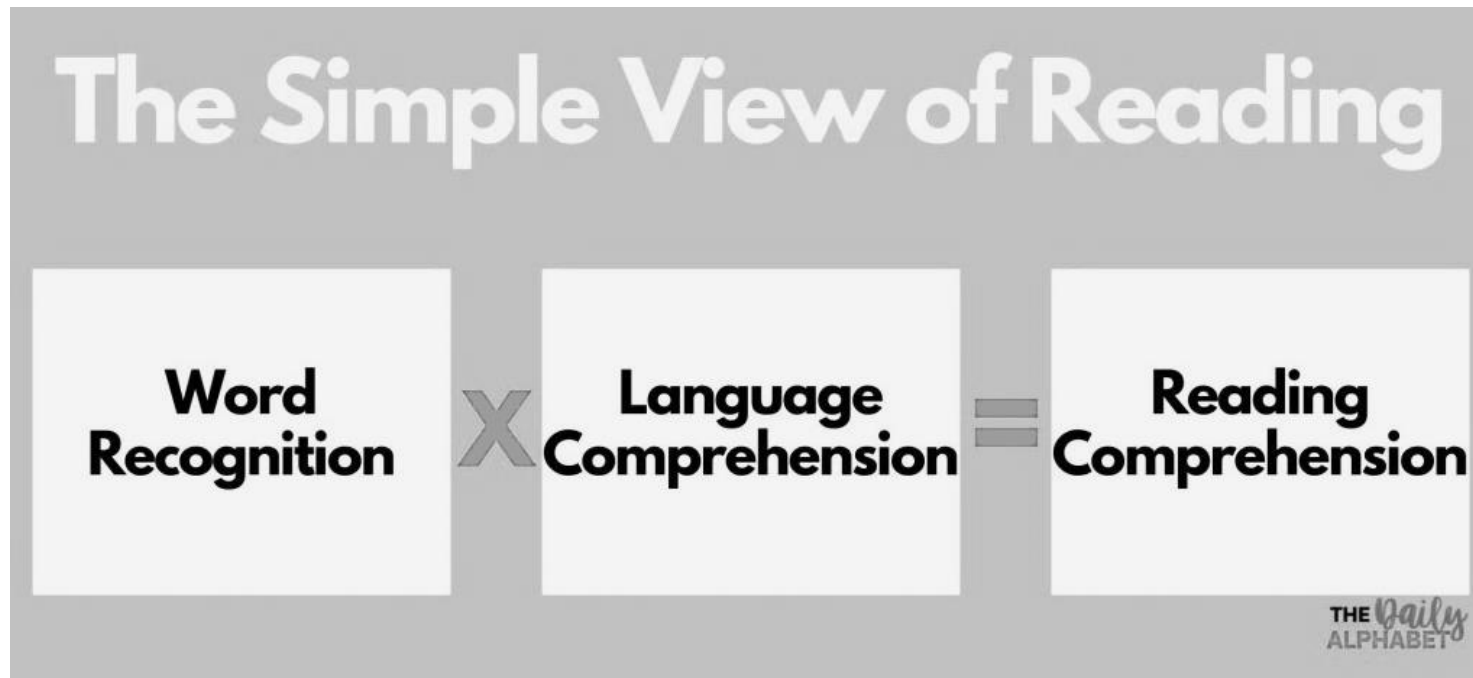
Reading:

WHAT you need to learn doesn't change

- "Cultural, economic, and educational circumstances obviously affect children's progress," ... "But what they need to learn does not change."
 - (Dr. Mark Seidenberg in his book *Language at the Speed of Sight: How We Read, Why So Many Can't, and What Can Be Done About It*)
- Differences in necessity for intensive repetition and scaffolding certainly exist when working with students who have complex needs

The Simple View of Reading

- Word Recognition (code focused)
- Language Comprehension (meaning focused)
- Reading Comprehension (the goal of reading)



Literature Review: Research on Comprehensive Programs

- Historically, research on reading for students with IDD (intellectual and developmental disabilities) has been limited
- Research in recent years has shown students with IDD respond favorably to more **comprehensive programs** of reading instruction
 - (e.g., Allor, et al., 2014; Allor, et al., 2013; Browder, Mims, Spooner, Ahlgrim-Delzell, & Lee 2008; Connor, Alberto, Compton, & O'Connor, 2014; Lemons, et al., 2015).

Research with Friends on the Block (from IES grants)

- Benner, G. J., Smolkowski, K., Allor, J., Al Otaiba, S., Preast, J., Small, J. W., Hermecz, S. B., & Strycker, L. A. (in press). Impact of a Comprehensive and Flexible Intervention for Students with Disabilities Experiencing Intensive Literacy Needs. Remedial and Special Education. [[efficacy study, cohort 1](#)]
- Allor, J. H., Gifford, D. B., Jones, F. G., Al Otaiba, S., Yovanoff, P., Ortiz, M. B., & Cheatham, J. P. (2018). The effects of a text-centered literacy curriculum for students with intellectual disability. American Journal for Intellectual and Developmental Disabilities. [[pilot study with 8 students](#)]
- Jones, F. J., Gifford, D. B., Yovanoff, P., Al Otaiba, S., Levy, D., & Allor, J. (2018). Alternate assessment formats for progress monitoring students with intellectual disabilities and below average intellectual quotients: An exploratory study. Focus on Autism and Developmental Disabilities. [[assessment study](#)]
- Allor, J. H., Yovanoff, P., Al Otaiba, S., Ortiz, M. B., & Conner, C. (2020). Literacy intervention for students with intellectual and developmental disabilities: A meta-analysis. [[analysis of all 18 students from pilot studies](#)]



Study



CEC 2026

SPECIAL EDUCATION
CONVENTION & EXPO

SALT LAKE CITY

MARCH 11-14, 2026

Primary Research Question

Do **students with disabilities** who experience **intensive literacy needs**, including students with intellectual and developmental disabilities, who participate in FOTB demonstrate greater **reading** and **language outcomes** compared to students who participate in BAU reading instruction?

Overall Mean Average School Demographics

- Enrollment: 544 (Range: 316-770)
- Minority Enrollment: 76% (6-99%)
- Economically Disadvantaged: 79% (51-91%)
- Student/Teacher Ratio: 15.3:1 (12:1 to 18:1)

Demographics and Dosage: Cohort 1

Participants

- 62 students
 - (31 treatment; 31 control)
- Mean age: 7.8 (1.5)
- IQ (KBIT) Mean: 72.7 (15.2)
 - (range: 40 to 106)
- Disabilities
 - Intellectual/Developmental (54.8%)
 - Autism (9.7%)
 - Specific Learning Dis. (17.7%)
 - Speech/Language, Other (6.5%)
 - Not available (11.3%)

Intervention: Mean Dosage

- Hours of instruction: 51.9 (14.5)
- Weeks of instruction: 34.0 (8.9)
- Days per week: 3.5 (0.5)
- Minutes per session: 26.4 (2.4)

Note: 51.6% of the students in the C1 treatment group (n = 16) completed the entire program in 42 weeks or less (about 50 hours of instruction).

Demographics and Dosage: Cohort 2

Participants

- 70 students
 - (36 treatment; 34 control)
- Mean age: 7.6 (1.4)
- IQ (KBIT) Mean: 69.2 (13.1)
 - (range: 40 to 92)
- Disabilities
 - Intellectual/Developmental (31.4%)
 - Autism (5.7%)
 - Specific Learning Dis. (11.4%)
 - Speech/Language, Other (32.9%)
 - Not available (18.6%)

Intervention: Mean Dosage

- Hours of instruction: 50.3 (16.5)
- Weeks of instruction: 34.6 (9.7)
- Days per week: 3.7 (0.3)
- Minutes per session: 23.4 (2.2)

Note: 36.1% of the students in the C2 treatment group (n = 13) completed the entire program in 42 weeks or less (about 50 hours of instruction).

Engagement Comparison: Cohorts 1&2

	Cohort 1 <i>M(SD)</i>	Cohort 2 <i>M(SD)</i>
Average % of sessions engaged	74.2 (26.7)	49.8 (36.1)
Dosage (in hrs.)	51.9 (14.5)	50.3 (16.5)
Engagement-adjusted dosage (in hrs.)	39.3 (14.9)	24.9 (20.6)

Reading Variables & Measures

- Phonemic Awareness
 - Comprehensive Test of Phonological Processing, 2nd Edition—Blending Words
- Decoding
 - Non-words
 - Wechsler Individual Achievement Test, Fourth Edition (WIAT-IV) Pseudoword Decoding
 - Real words
 - FOTB Word List
 - WIAT-IV Word Reading
- Fluency
 - WIAT-III Oral Reading Fluency

Language Variables & Measures

- Oral Expression
 - WIAT-IV Oral Expression
- Listening
 - WIAT-IV Listening Comprehension



Think, Pair, Share

What works best when teaching students with intensive early literacy needs, including those with IDD, to read?



Intervention



CEC 2026

SPECIAL EDUCATION
CONVENTION & EXPO

SALT LAKE CITY

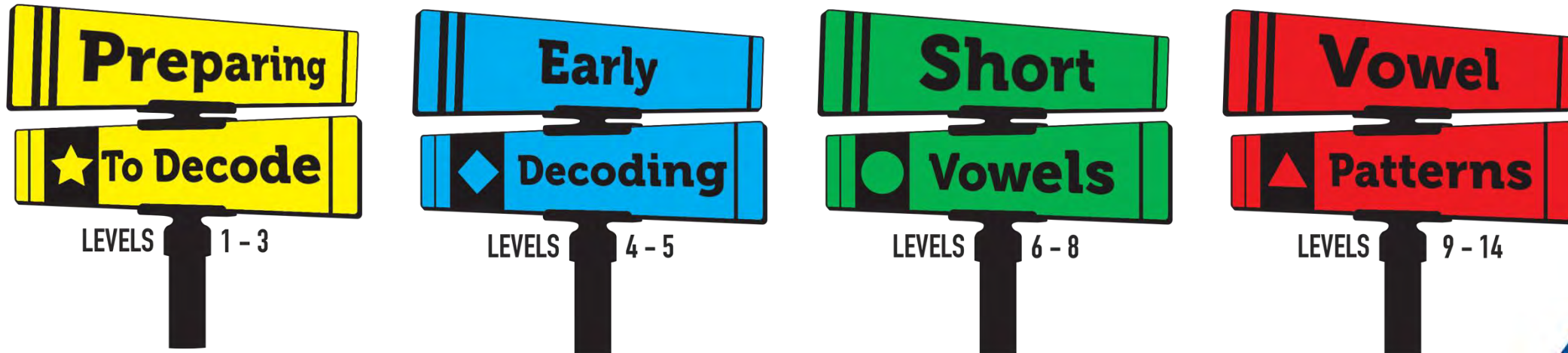
MARCH 11-14, 2026

What is Friends on the Block?

A comprehensive and intensive **early literacy program** (initial instruction or intervention) designed to be **customizable** and provide needed supports and practice so **all students** can attain early literacy skills, particularly those with **intensive needs** such as students with disabilities (e.g., dyslexia, learning disabilities, intellectual and developmental disabilities).

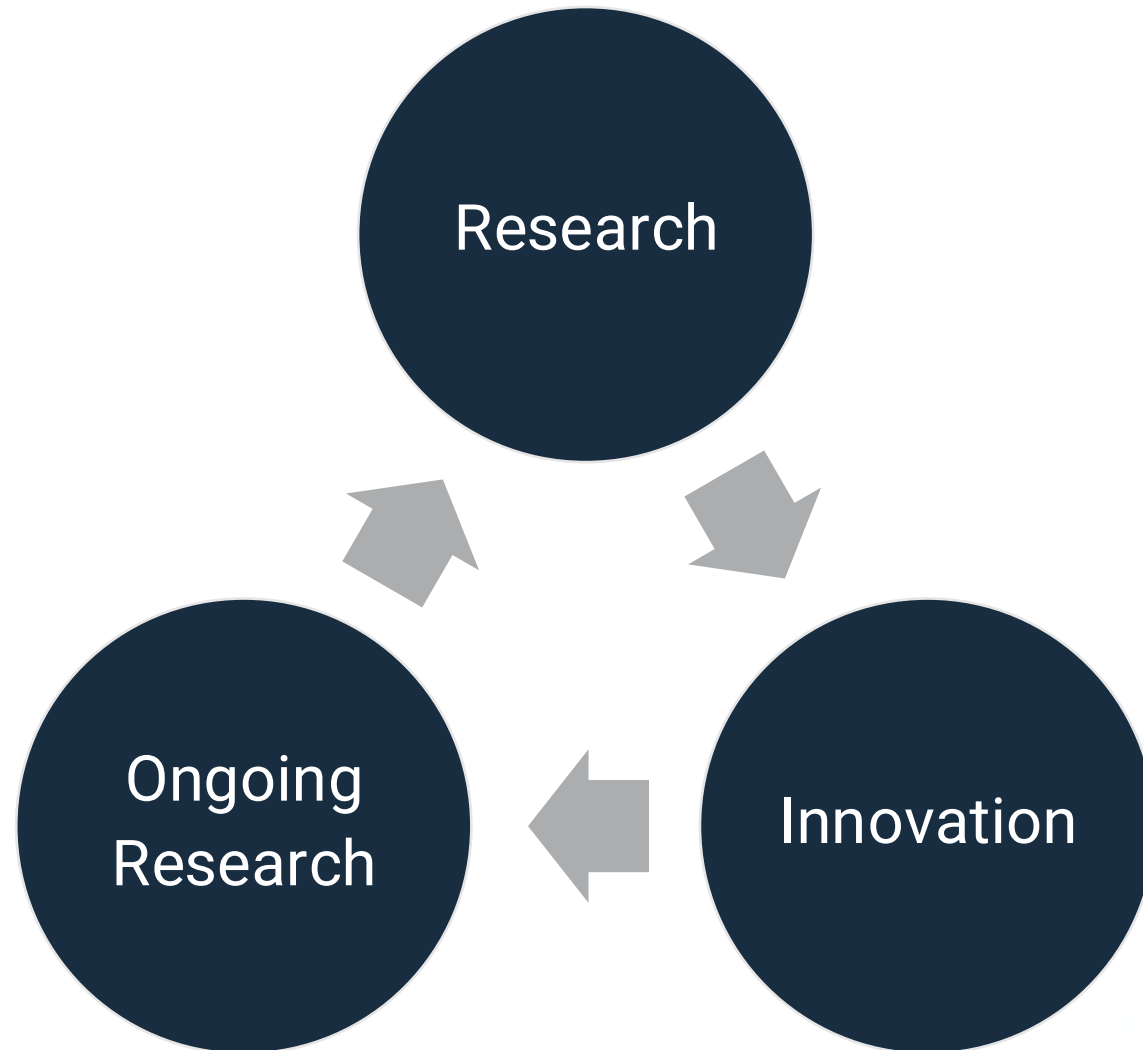
What are the components of FOTB?

- 60 student books with carefully controlled, decodable text
- Each book has a detailed Teacher's Guide and materials
- Over 100 learning games that provide specific cumulative practice of skills
- Organized into 14 levels that span four stages of skill development



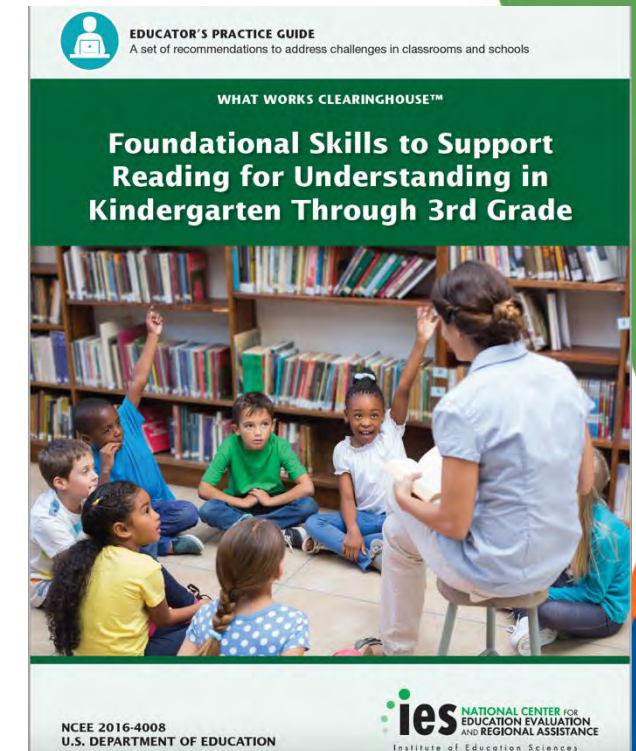
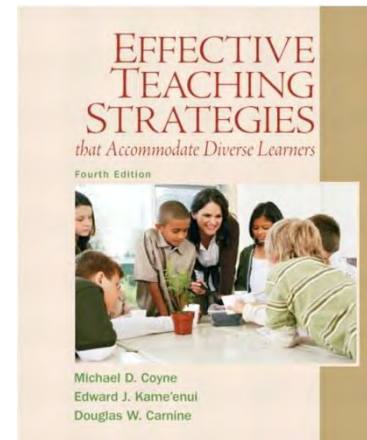
What makes Friends on the Block special?

- Applies existing research
- Ongoing process of research and innovation



Research: Evidence-based practices

- National Reading Panel (2000)
- WWC Practice Guide (2016)
- Principles of Effective Instruction
 - (Coyne et al., 2006; Kame'ennui et al., 2002; Coyne et al., 2011)



Benefits of Friends on the Block



REDUCED COGNITIVE LOAD



EMBEDDED LANGUAGE AND
COMPREHENSION
SUPPORTS



EXTENSIVE USE OF
CONNECTED TEXT



CEC 2026

Innovative Scope and Sequence

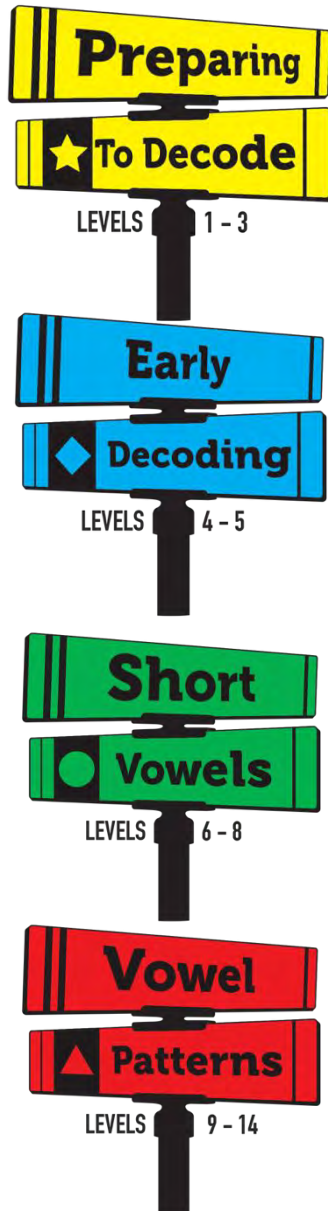
- Focuses on key skills within all strands of word recognition and language
- Facilitates integration of skills across strands and apply as they read books



Scope and Sequence

Strand	Objective/Skill	Activity Learning Game	★ 1-3	◆ 4-5	● 6-8	▲ 9-14
Language: Comprehension & Vocabulary	Make oral predictions about a text	Predict				
	Develop language and comprehension	Discuss				
	Discuss and summarize a text using a graphic organizer	Review/ Get the Gist (Level 12+)				
	Develop oral language by sorting words based on meaning	Think and Sort				
Phonemic Awareness	Orally blend the first sound and rime into a spoken word	Say the Word				
		Sounds Bingo				
	Say the first sound of spoken words	Say the First Sound				
		Sounds Bingo				
	Orally blend sounds (phonemes) into a word	Say the Word				
		Sounds Bingo				
Say the sounds (phonemes) in spoken words	Say the Sounds					
	Sounds Bingo					
Word Recognition	Fluently pronounce taught irregular (or temporarily irregular) words	Read It				
		Amazing Words				
		Word Bingo				
		Word Play				
	Fluently say the most common sound for taught letters	Say the Letter-Sound				
		Climb and Slide				
	Sound out and read short vowel words with taught letters/patterns	Sound It Out				
		I Got It				
	Sound out and fluently read words with taught letters/patterns	Sound It Out				
		Speed Reader				
		I Got It				
	Fluently read target words, including taught irregular words and words with taught letters/patterns	Read through the Seasons				
		Word Bingo				
		Word Play				
Pronounce words with taught patterns with s, ed, and ing	Read the Groups					
Pronounce words with taught spelling patterns and syllable types	Read the Parts					
Fluency	Read target words and sentences fluently	Super Sentences				
	Read text with increasing fluency	Read				
Writing	Say the sounds in spoken words; spell words with taught letters/patterns	I Got It				
		Say and Write				
	Write sentences fluently	Writing Super Sentences				
Apply	Apply various skills in the context of a book	Scavenger Hunt				

FOTB Target Word List and Phonics Patterns



Friends on the Block Target Word List and Phonics Patterns

	★ Preparing to Decode			◆ Early Decoding		● Short Vowels			▲ Vowel Patterns					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Level 11	Level 12	Level 13	Level 14
Letter Sounds	c, f, p, m, s, t	d, j, n	b, g, h, l, r	ck, k, a, z	u	ch, th, w, x, y	i, o, sh, qu, v	e	a-e, i-e, o-e	ai, ay, ol	al, ea, ee	ar, igh, er	oa, or, ow	ir, oo, ur
Sound It Out Words (Decodable)	In Levels 1-3 students are learning phonemic awareness blending and segmenting, letter-sounds, and a small number of irregular words. Students begin in the level in which they miss two or more target words (Levels 1-5) or four or more target words (Levels 6-14). As soon as the students learn most of the words in the starting level, move to the next level. (Note: Sound it Out words in Levels 4-5 are repeated in Level 6.)				am and at can dad mad sad	am and at can dad mad sad	am and at can dad fun had	big did got him if help in let it next mom not on sit stop then this went up with	bed best end get help hope like made make nine same side smile time white	came fine five gave home old plain play rain roll say stay tail told wait way	cold day hold may eat feel green neat need read see seem small tall wall	all call clean chapter different eat hard high light might never night number part right start together	after better below door follow forget goal know more morning own road short show slow yellow	before book burn cook disturb girl good hook hurt shirt stood third took turn wood
					Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
Read It Words (Irregular)	a do I like not want	dad here is look mom see the where	are at happy in no she yes you	good help play there to was	big have little my please very what	be friend give go he her it me on so thank we who with your	because care come could feel first of how next said should take too why would	again away clothes cold eat food for from need oh out put ready some	about animal been day does down every many one most or other push snow they were	any ball both boy done family girl more most once room saw their warm young	another answer kind know our people question really right second soon sure thought these word work	almost book bought break buy easy four idea learn money new probably review these two watch	above alone by eight find house idea often special talk through usually walk water worry	able along carry color full great heard instead live love move only over try world
	Note: Words in blue are made up of patterns taught in later levels so they are temporarily irregular. They are introduced prior to the pattern to facilitate meaning and may facilitate learning of the phonics pattern.													



© 2022 Jill H. Allor, Jennifer P. Cheatham, and Stephanie Al Otaiba



A Typical FOTB Lesson (Flexible: About 20-35 minutes, Level 4 Example)

Part 1: Warm-Ups

5-8 minutes

Part 2: Book Reading

10-15 minutes

Part 3: Learning Games

5-10 minutes



Immediate Results



CEC 2026

SPECIAL EDUCATION
CONVENTION & EXPO

SALT LAKE CITY

MARCH 11-14, 2026

Results Overview

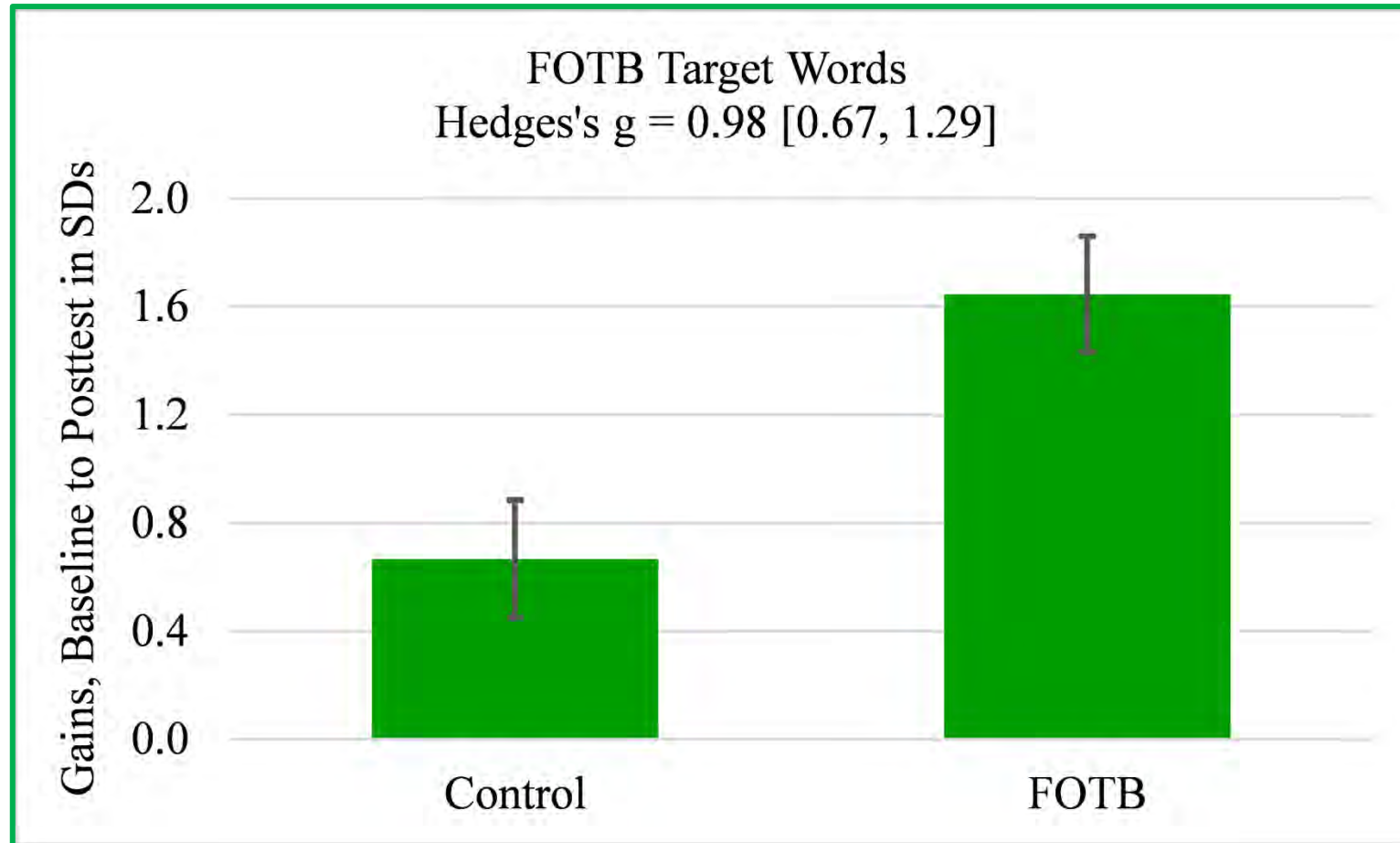
- Analyzed 22 measures—reported a representative summary
 - Proximal measure for FOTB
 - Phonemic Awareness
 - Pseudoword Decoding
 - Word Reading
 - Reading Fluency
 - Listening Comprehension
 - Oral Expression
 - Reading Comprehension

Results Summary

Measures Reported Today (C1 & C2)	<i>p</i>	<i>g</i>
FOTB (proximal measure of target words)	<.0001	0.98
CTOPP Blending	0.25	0.20
WIAT Pseudoword Decoding	0.098	0.30
WIAT Word Reading	0.008	0.37
WIAT Oral Reading Fluency	<.0001	0.82
WIAT Receptive Vocabulary	0.4474	0.16
WIAT Oral Discourse	0.3930	-0.13
WIAT Expressive Vocabulary	0.3495	-0.14
WIAT Oral Word Fluency	0.9244	-0.01
WIAT Reading Comprehension	0.006	0.59

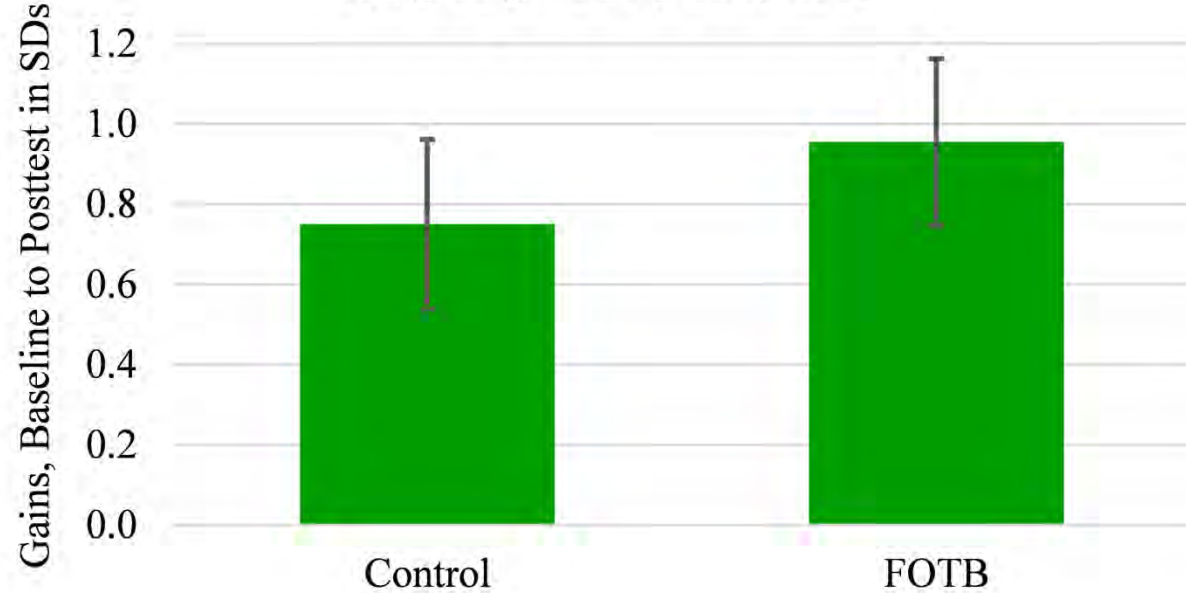
Note. *p* values adjusted with Benjamini–Hochberg correction for 22 total tests

Proximal measure for FOTB

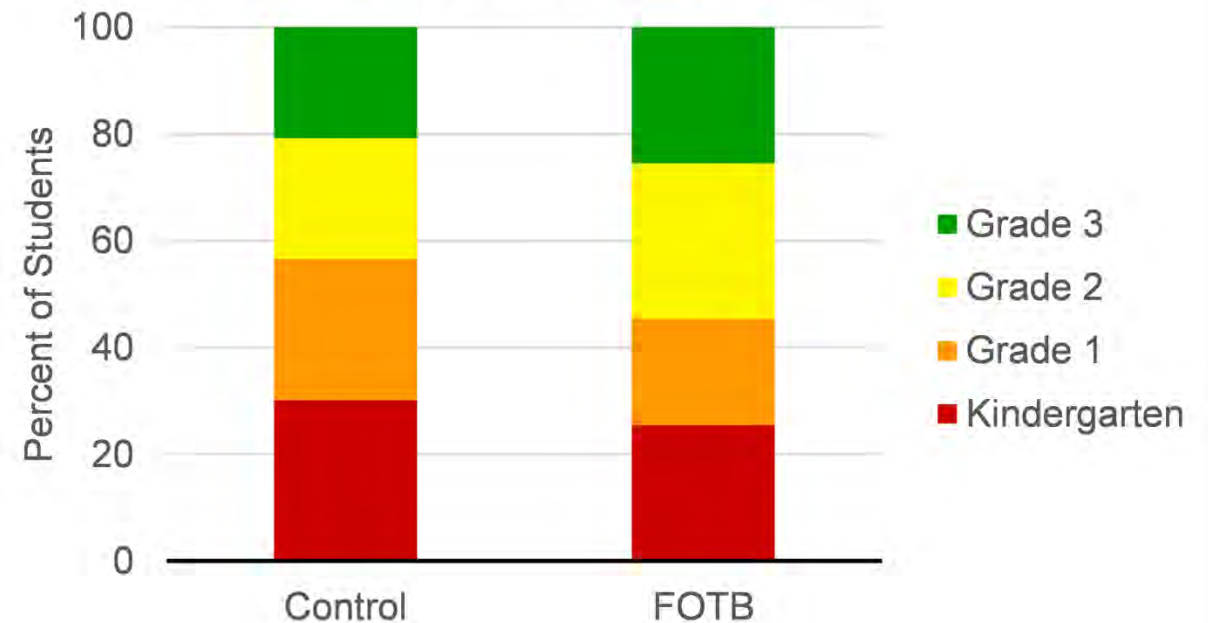


Phonemic Awareness (Blending)

CTOPP Blending Words
Hedges's $g = 0.21 [-0.09, 0.50]$

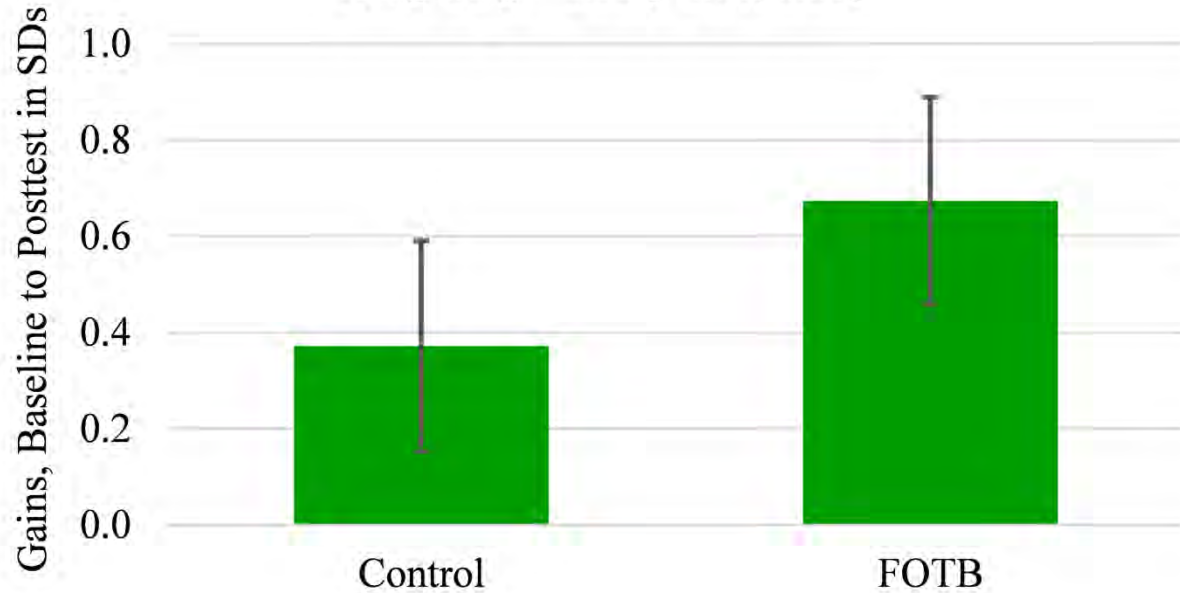


CTOPP Blending

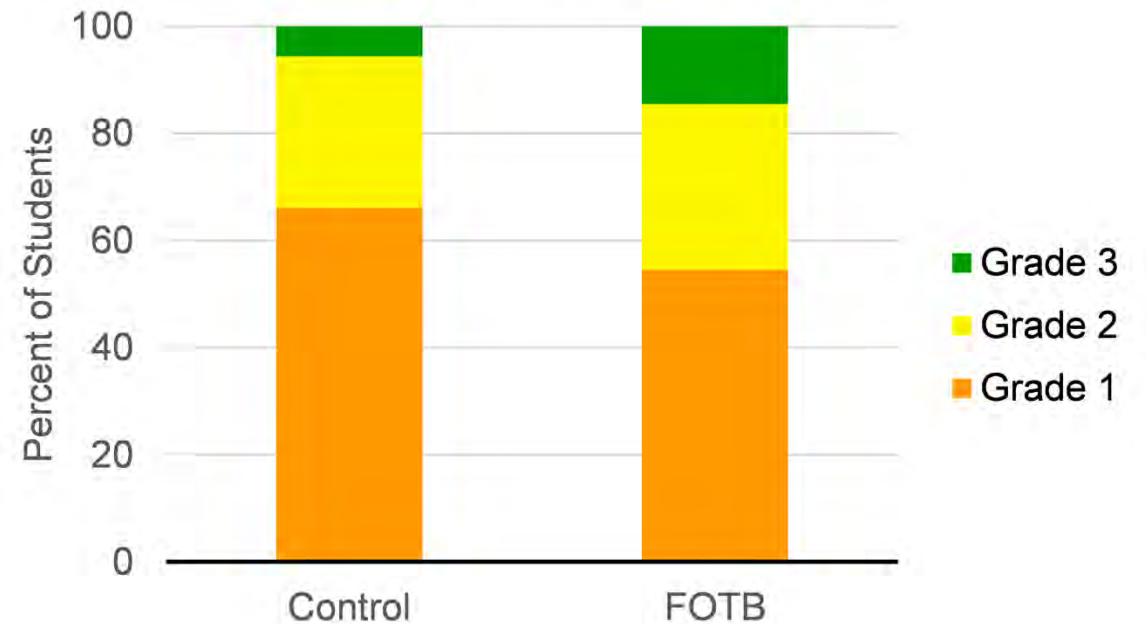


Pseudoword Decoding

WIAT Pseudoword Decoding
Hedges's $g = 0.30 [-0.01, 0.61]$

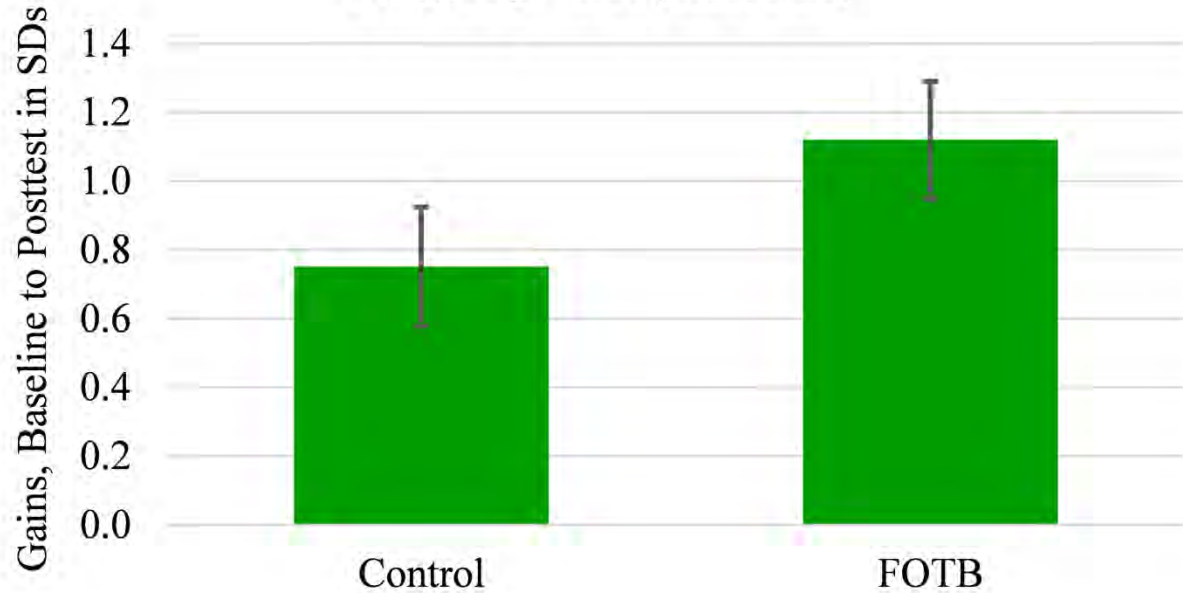


WIAT Pseudoword Decoding

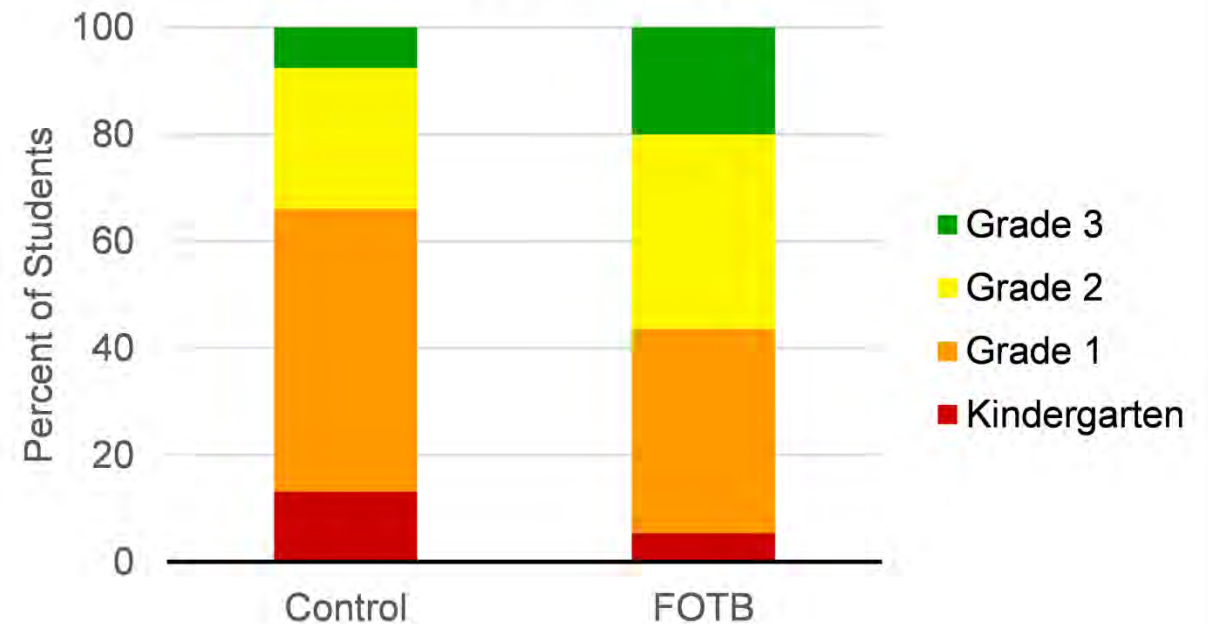


Word Reading

WIAT Word Reading
Hedges's $g = 0.37 [0.13, 0.61]$

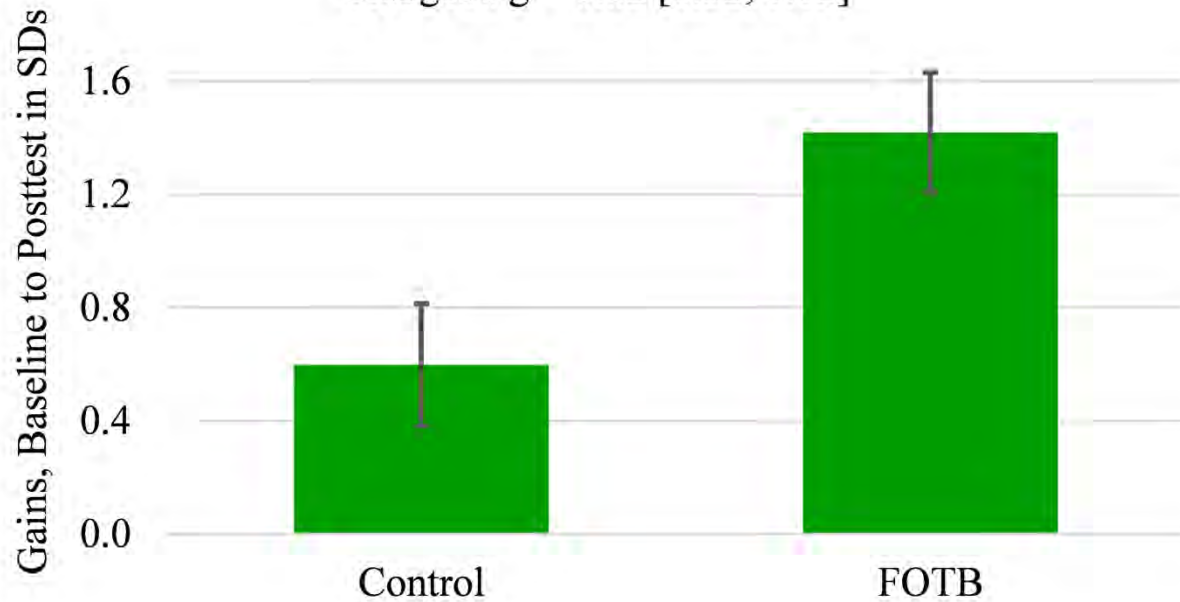


WIAT Word Reading

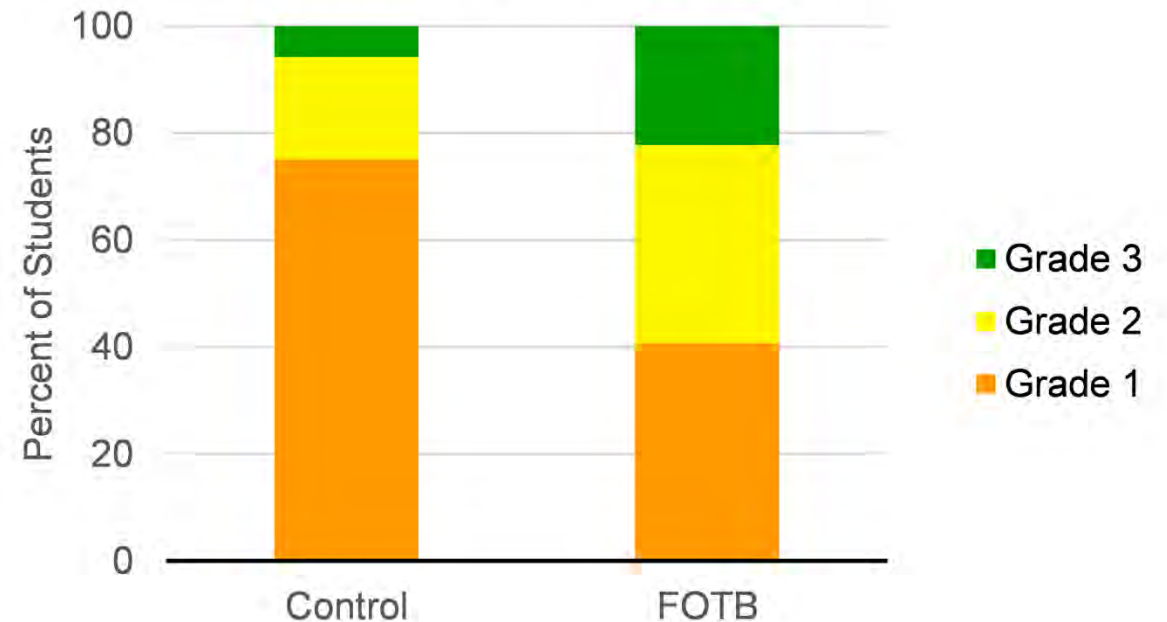


Oral Reading Fluency

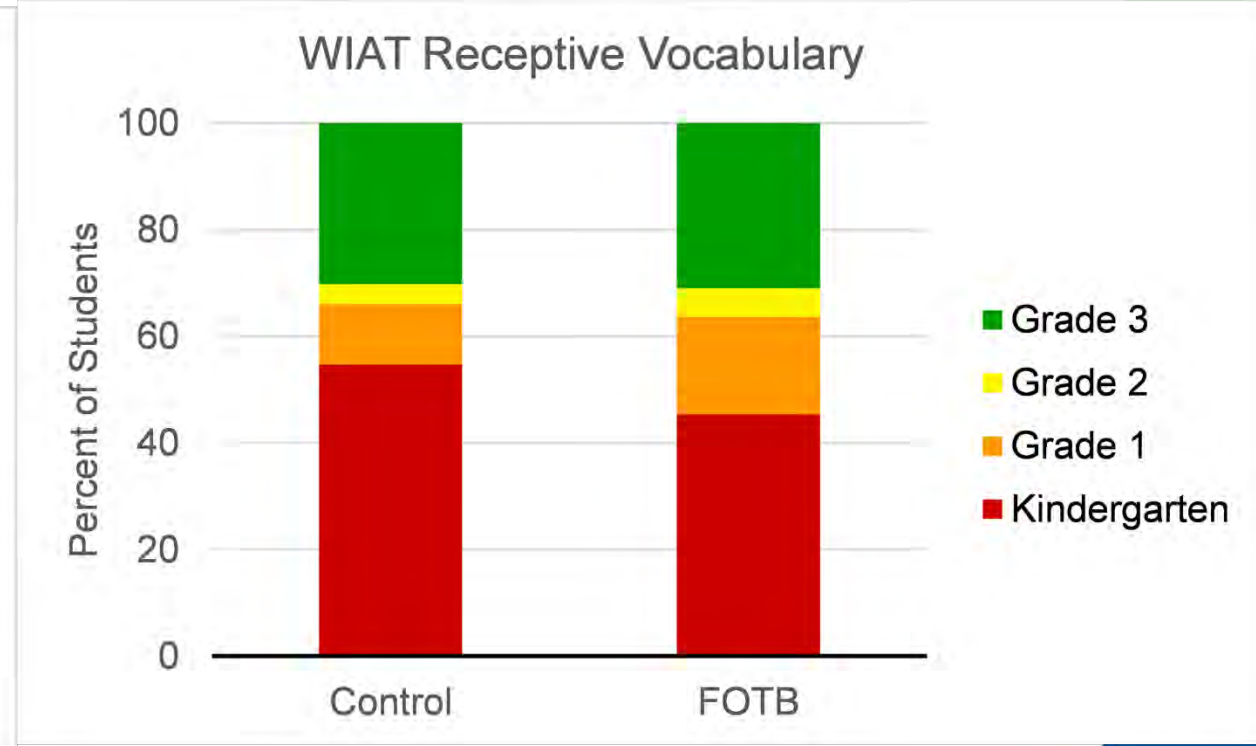
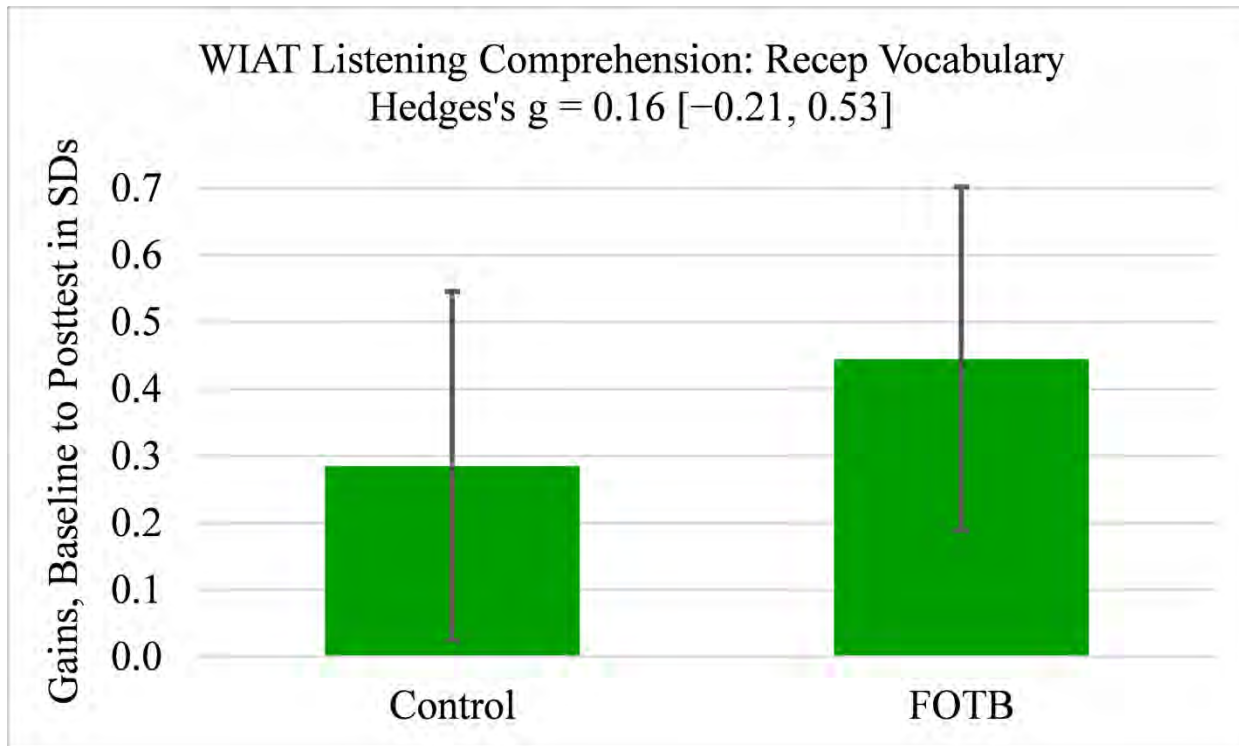
WIAT Oral Reading Fluency
Hedges's $g = 0.82$ [0.52, 1.12]



WIAT Oral Reading Fluency

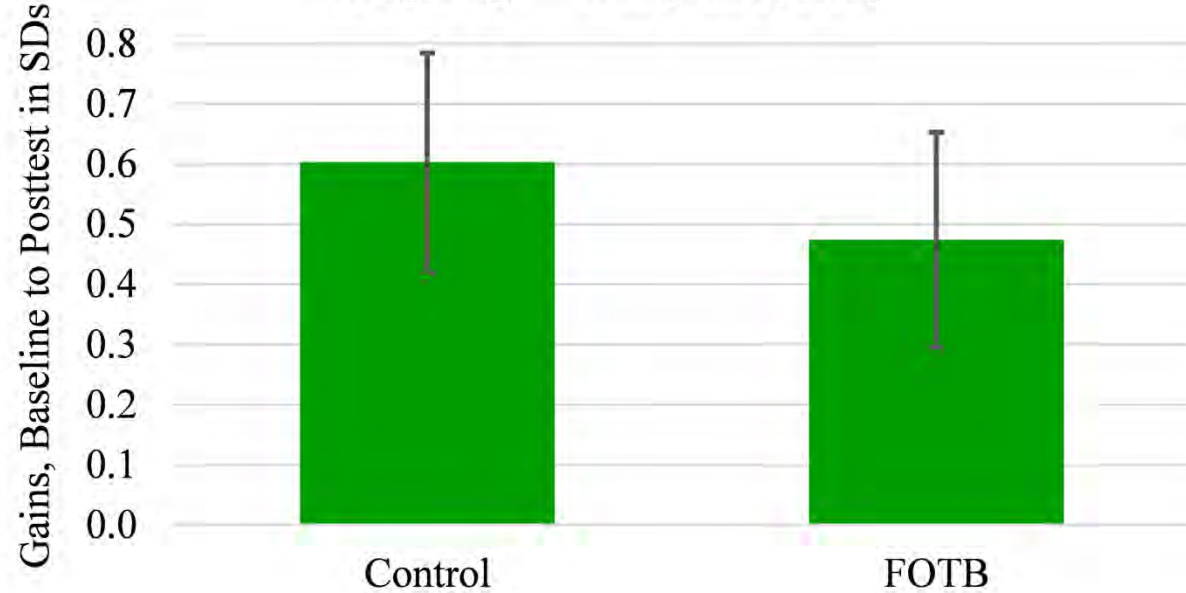


Listening Comprehension (Receptive Vocabulary)

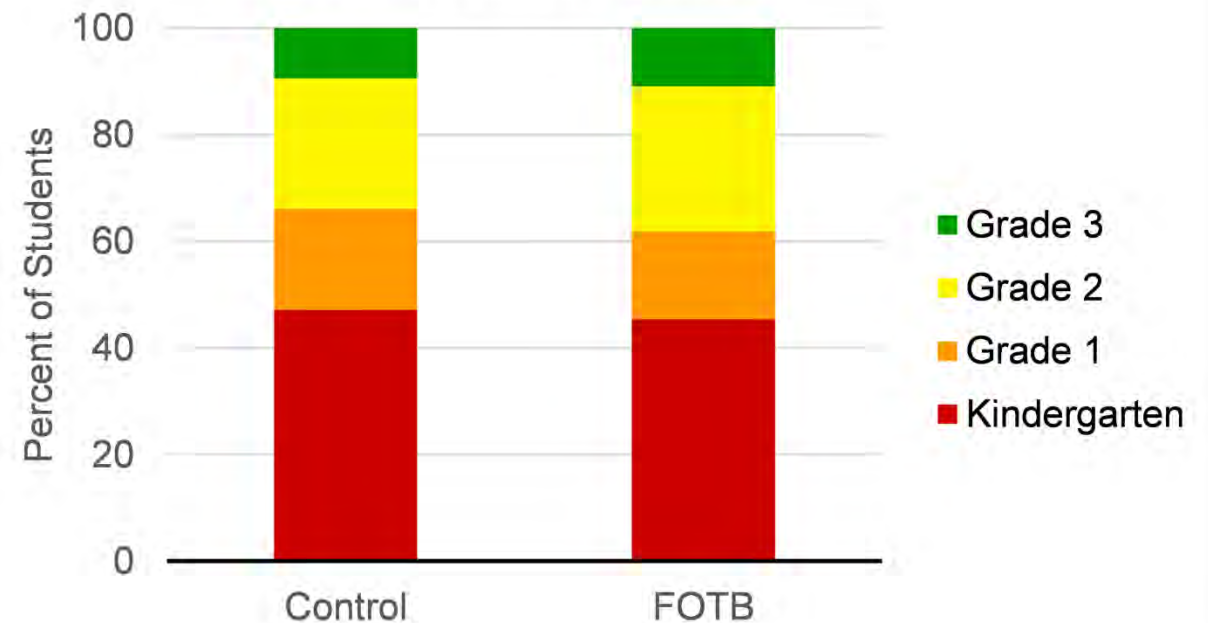


Listening Comprehension (Oral Discourse)

WIAT Listening Comprehension: Oral Discourse
Hedges's $g = -0.13 [-0.38, 0.13]$

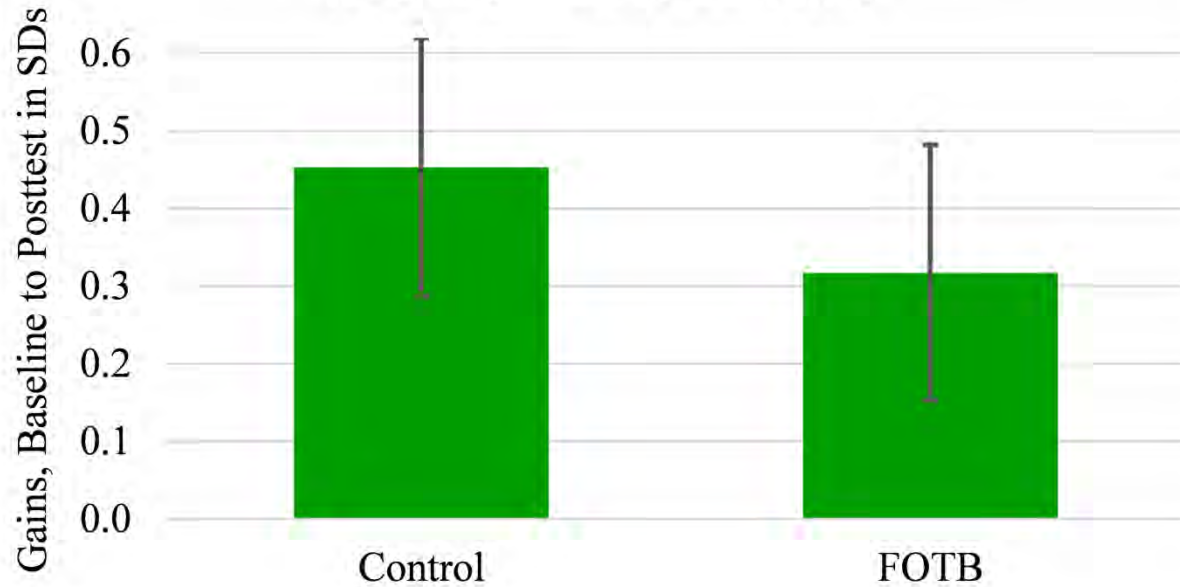


WIAT Oral Discourse

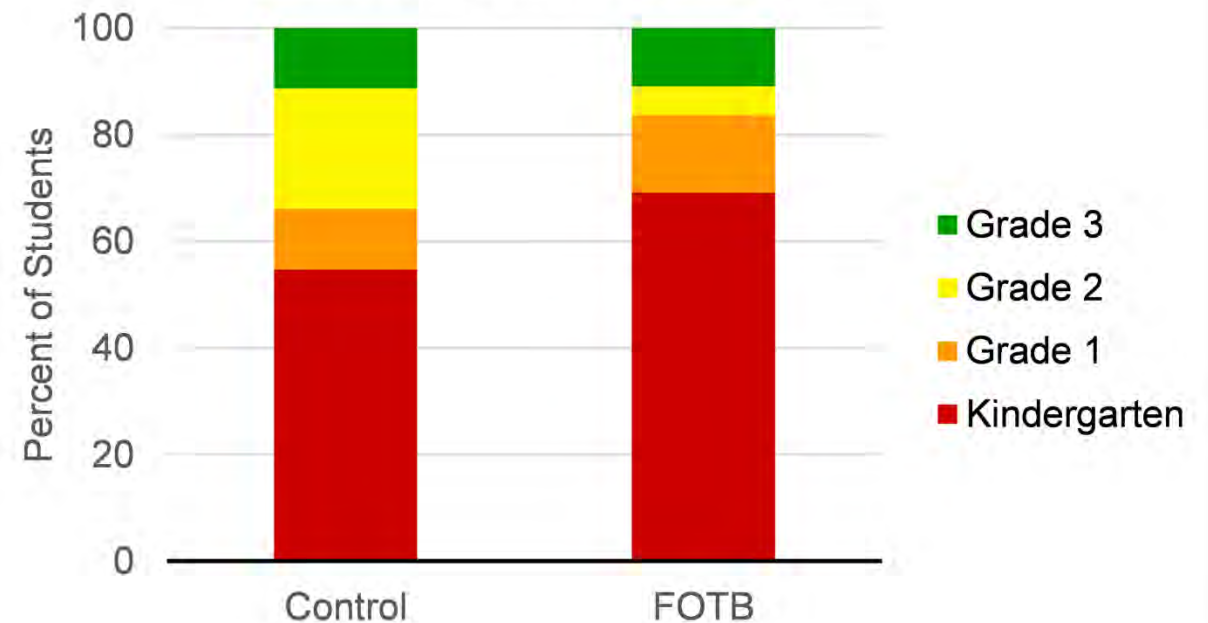


Oral Expression (Expressive Vocabulary)

WIAT Oral Expression: Expressive Vocabulary
Hedges's $g = -0.14 [-0.37, 0.10]$

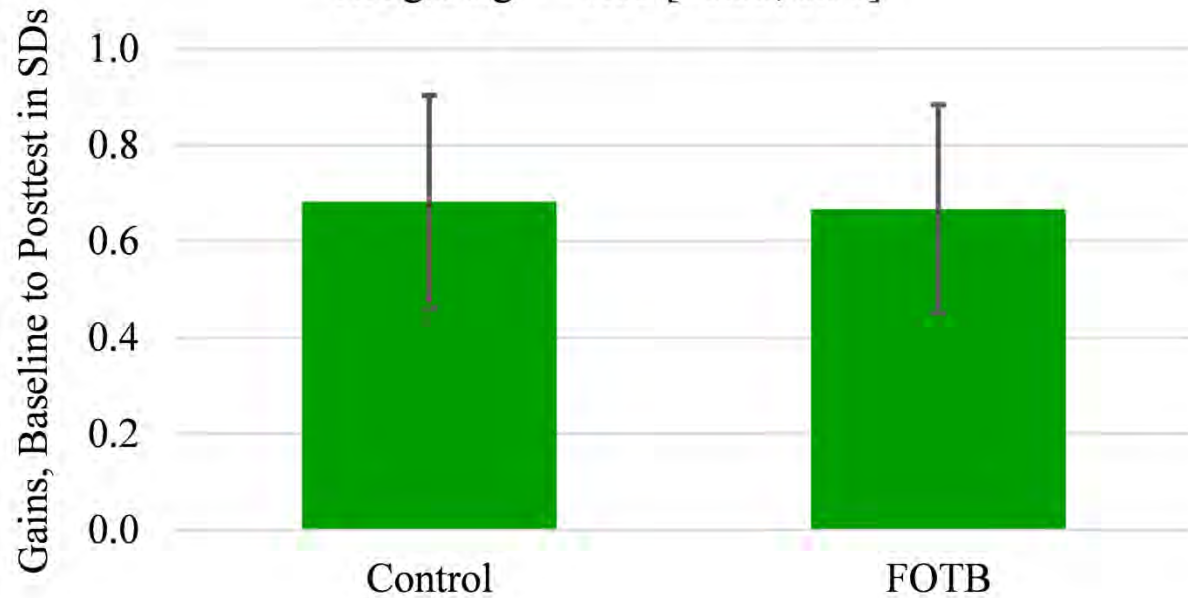


WIAT Expressive Vocabulary

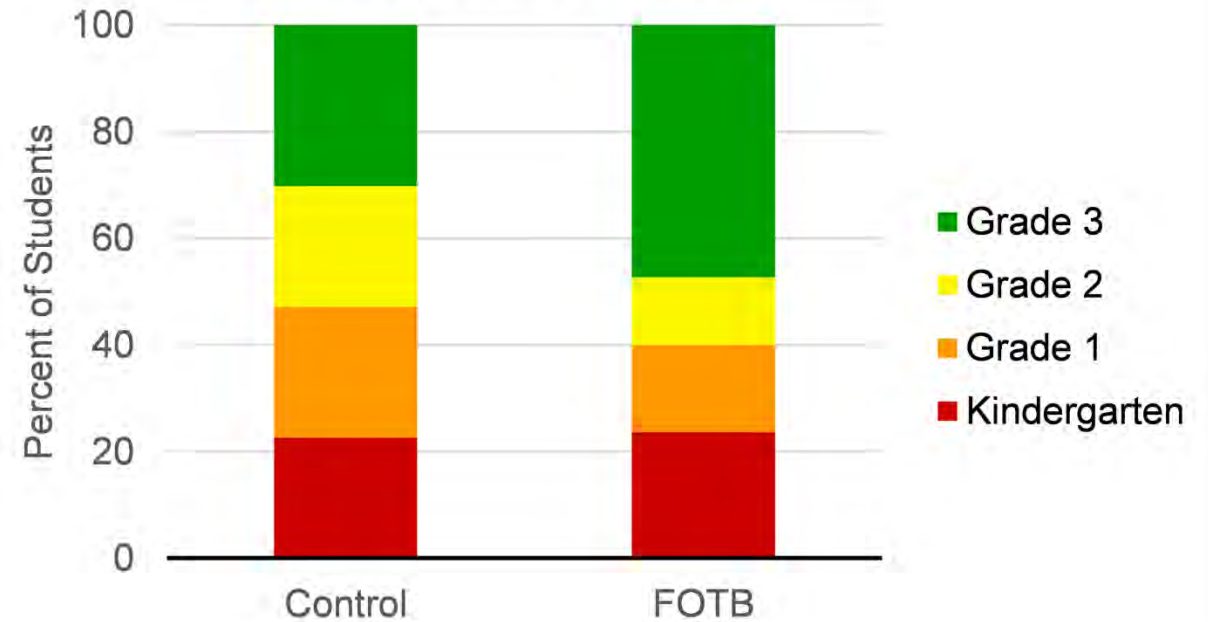


Oral Expression (Oral Word Fluency)

WIAT Oral Expression: Oral Word Fluency
Hedges's $g = -0.02 [-0.33, 0.30]$

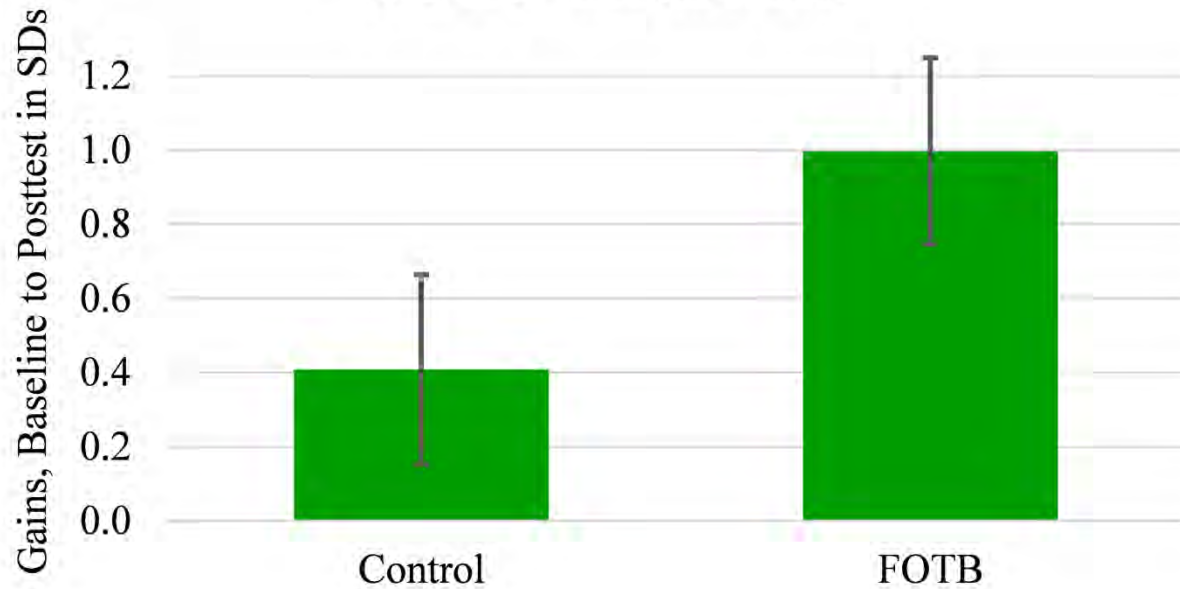


Oral Word Fluency

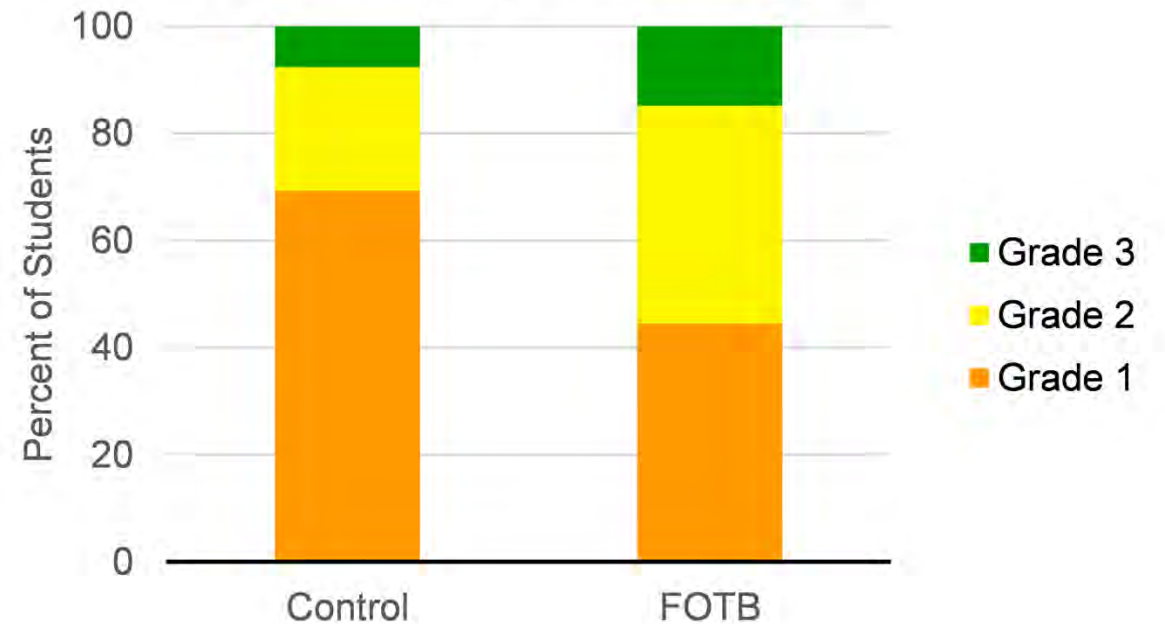


Reading Comprehension

WIAT Reading Comprehension
Hedges's $g = 0.59$ [0.23, 0.95]



WIAT Reading Comprehension



Results Summary

Measures Reported Today (C1 & C2)	<i>p</i>	<i>g</i>
FOTB (proximal measure of target words)	<.0001	0.98
CTOPP Blending	0.25	0.20
WIAT Pseudoword Decoding	0.098	0.30
WIAT Word Reading	0.008	0.37
WIAT Oral Reading Fluency	<.0001	0.82
WIAT Receptive Vocabulary	0.4474	0.16
WIAT Oral Discourse	0.3930	-0.13
WIAT Expressive Vocabulary	0.3495	-0.14
WIAT Oral Word Fluency	0.9244	-0.01
WIAT Reading Comprehension	0.006	0.59

Note. *p* values adjusted with Benjamini–Hochberg correction for 22 total tests

Maintenance Results



CEC 2026

SPECIAL EDUCATION
CONVENTION & EXPO

SALT LAKE CITY

MARCH 11-14, 2026

Methods (Students Tested at Follow-Up)

Approximate Timeline

- Baseline: Fall 2021
 - Post: Spring 2023
 - End of Intervention
 - Follow-Up: Spring 2024
- N=39 (21 FOTB; 18 BAU)
 - Mean Age at Beginning of Intervention: 7.6 (Control SD=1.5, Treatment SD=1.1)
 - Gender: 67% male, 33% female
 - Race: 64% African American, 36% White
 - Disability labels:
 - 10% Intellectual Disability
 - 54% Developmental Delay
 - 10% Autism (IQ mean=76.5; SD=11.86)
 - 15% Specific Learning Disability
 - 5% Speech/ Language Disorder
 - 5% Other Health Impairment

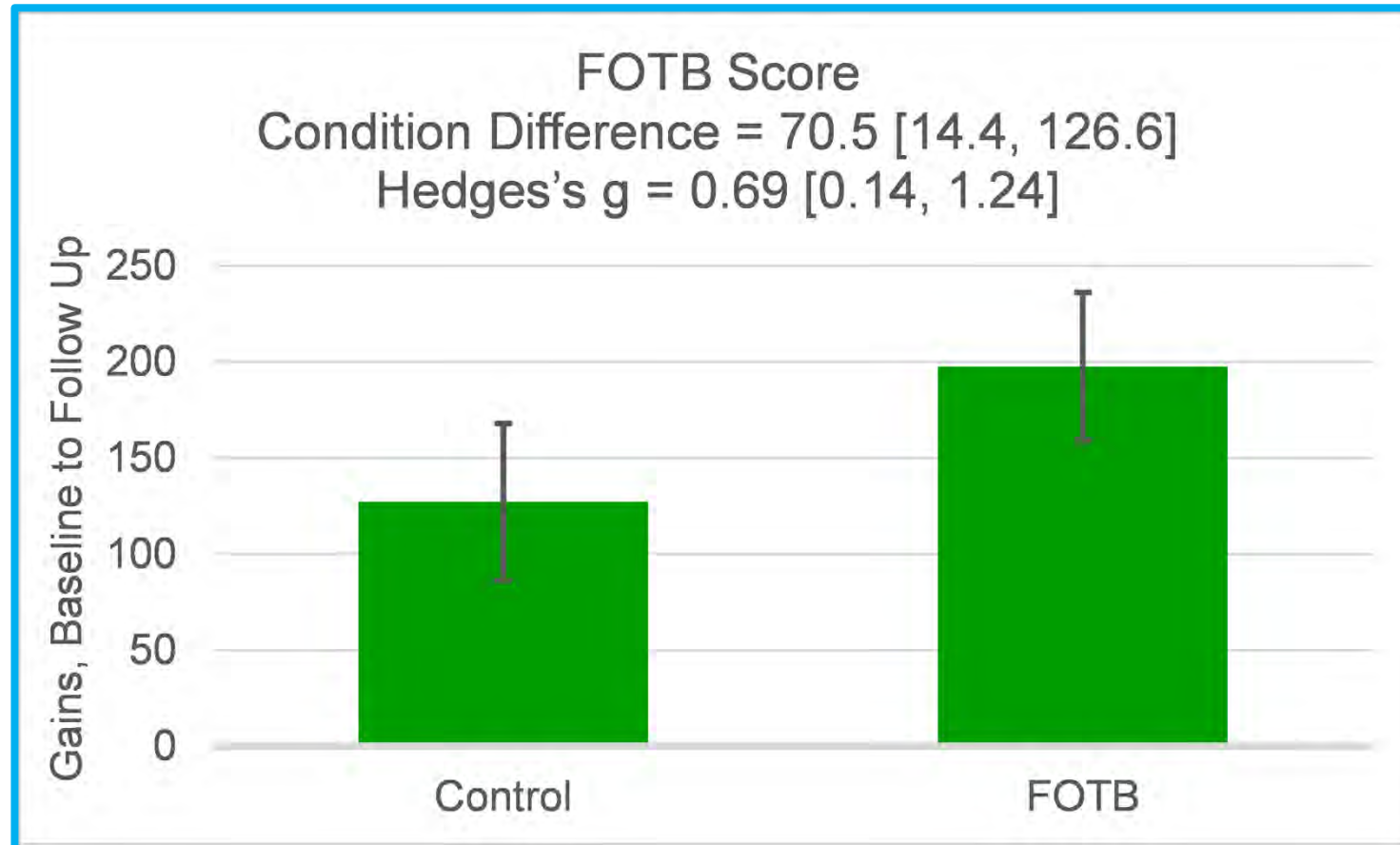
Follow-Up Results Summary (Cohort 1)

Baseline to Post (C1)	<i>p</i>	<i>g</i>
FOTB (proximal measure of target words)	.0006	1.2
CTOPP Blending	.0702	0.5
WIAT Pseudoword Decoding	.0326	0.6
WIAT Word Reading	.0326	0.4
WIAT Oral Reading Fluency	.0006	1.0
WIAT Receptive Vocabulary	.9388	0.0
WIAT Oral Discourse	.7561	-0.1
WIAT Expressive Vocabulary	.7606	-0.1
WIAT Oral Word Fluency	.4026	0.2
WIAT Reading Comprehension	.0176	0.7

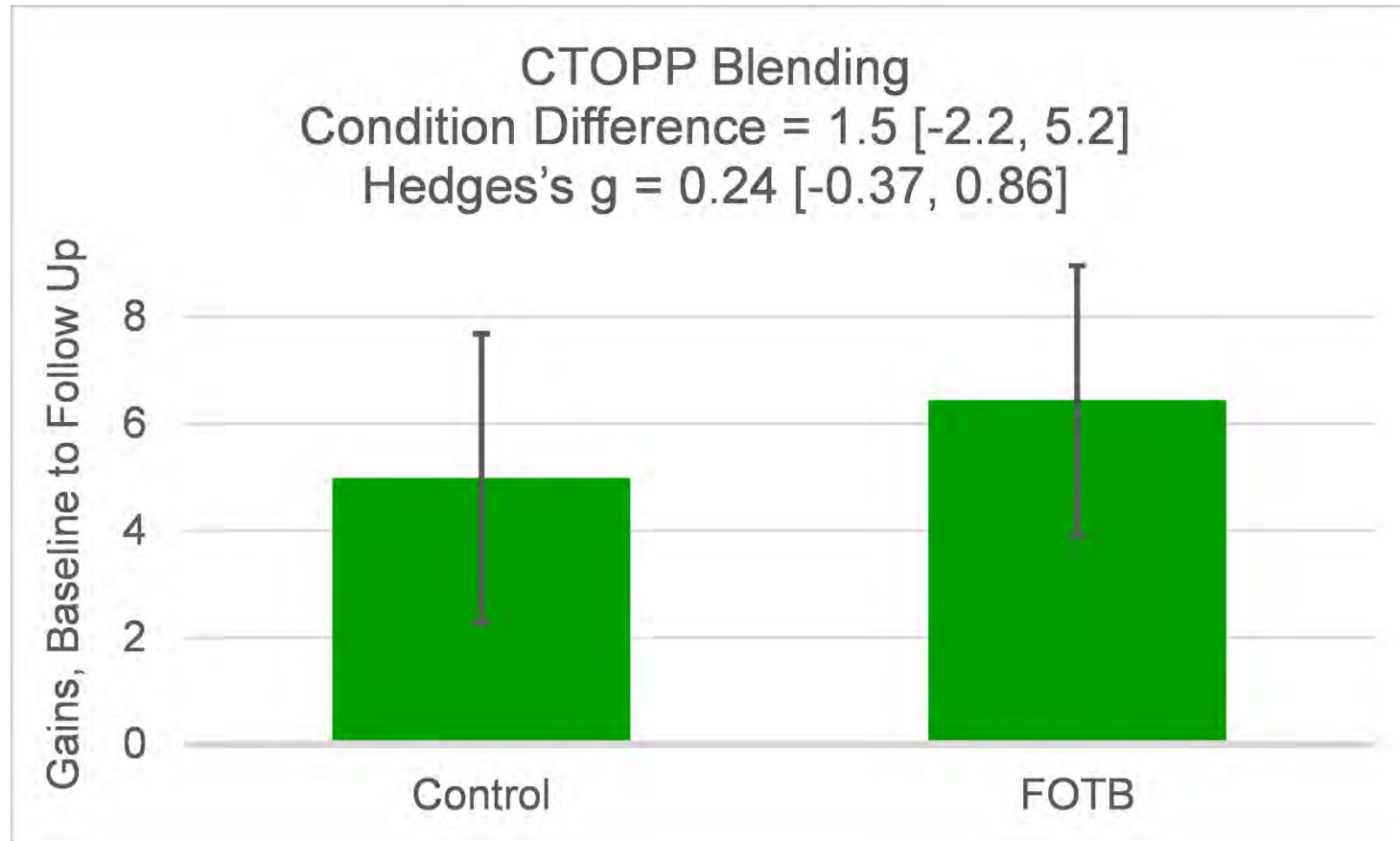
Baseline to Follow Up (C1)	<i>p</i>	<i>g</i>
FOTB (proximal measure of target words)	.0557	0.7
CTOPP Blending	.5247	0.2
WIAT Pseudoword Decoding	.0622	0.6
WIAT Word Reading	.0745	0.4
WIAT Oral Reading Fluency	.0033	0.95
WIAT Receptive Vocabulary	.5176	0.2
WIAT Oral Discourse	.7817	-0.1
WIAT Expressive Vocabulary	.2572	0.3
WIAT Oral Word Fluency	.0801	0.7
WIAT Reading Comprehension	.0303	0.8

Note. *p* values adjusted with Benjamini–Hochberg correction for 22 total tests

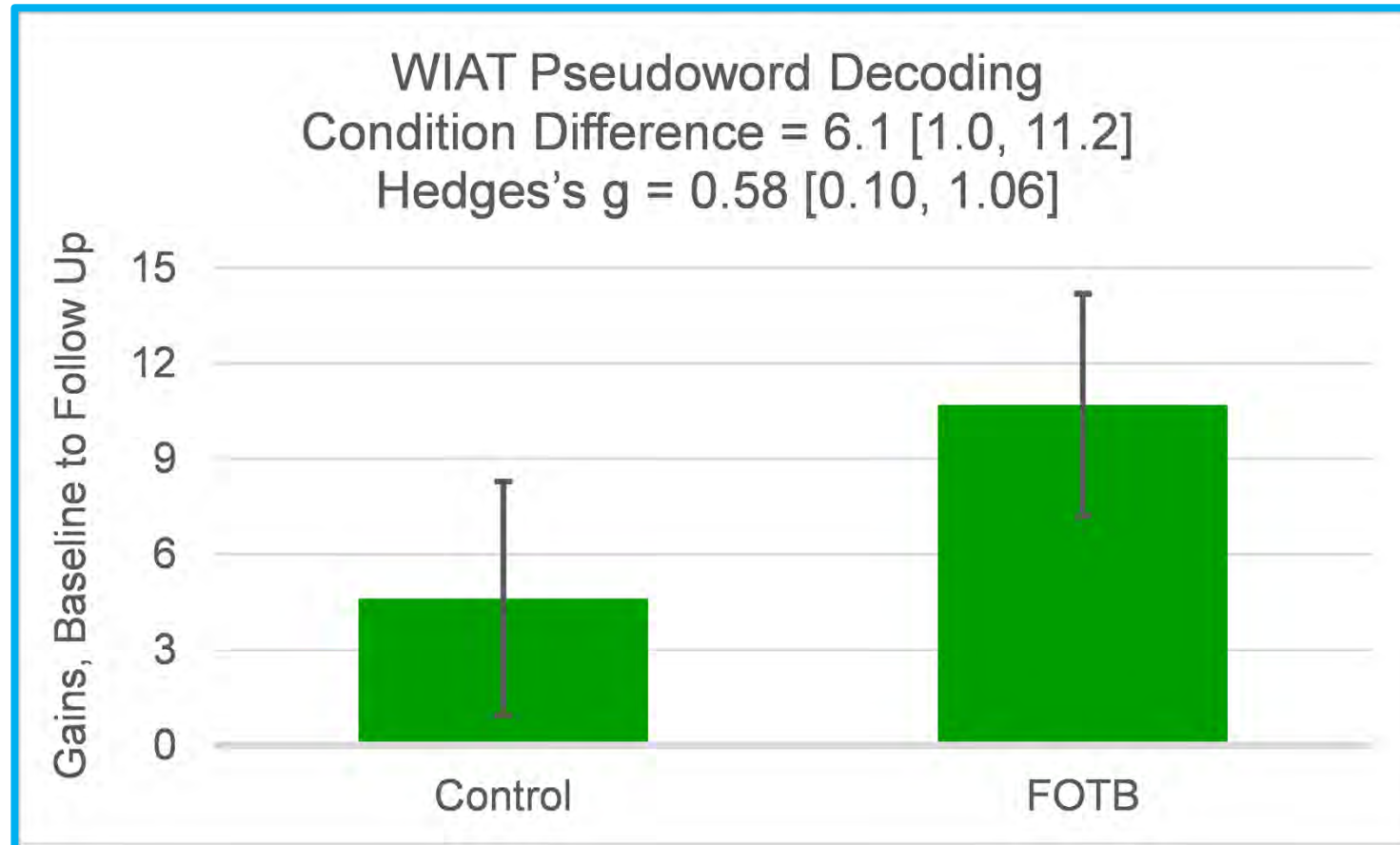
Proximal Measure for FOTB



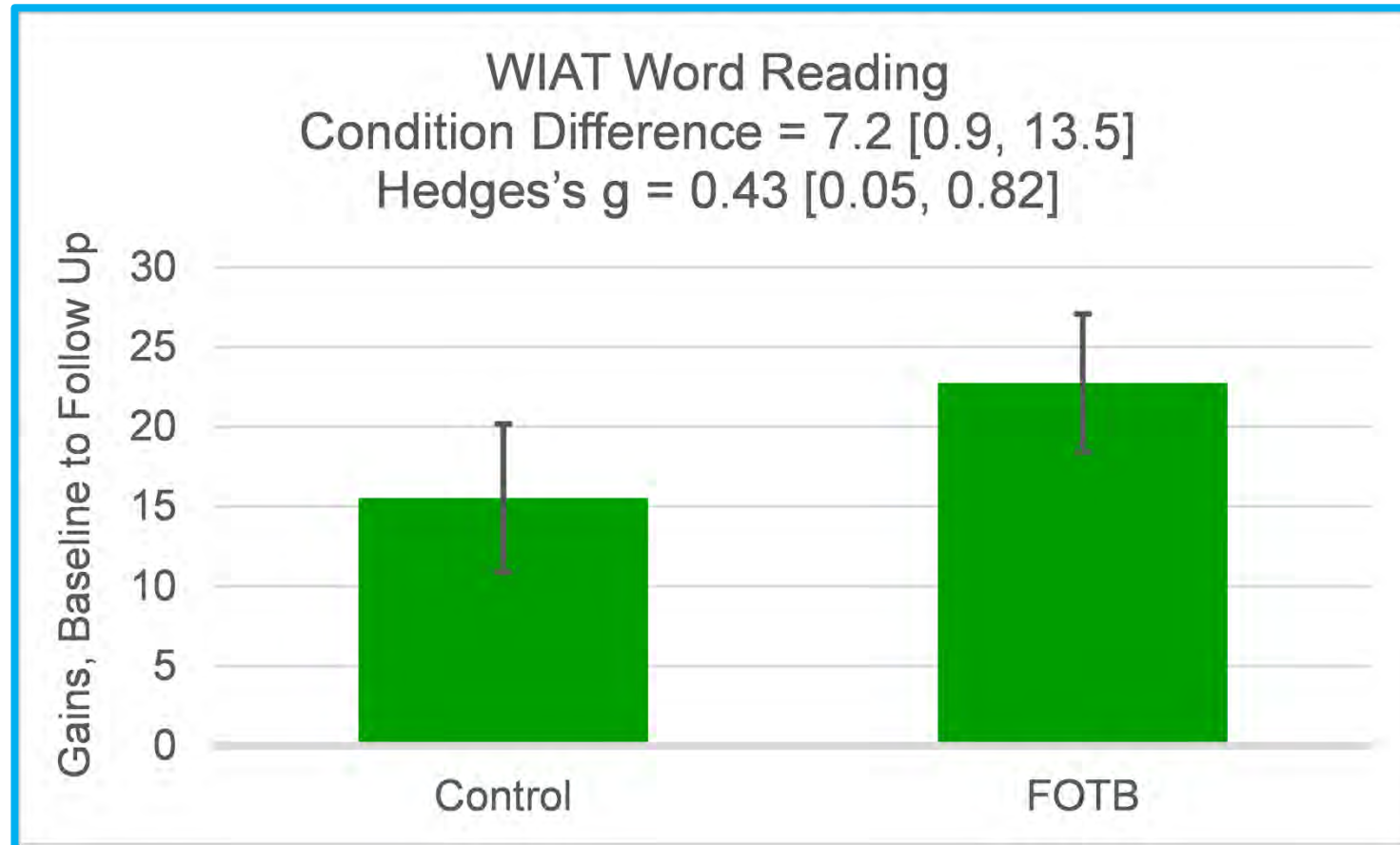
Phonemic Awareness (Blending)



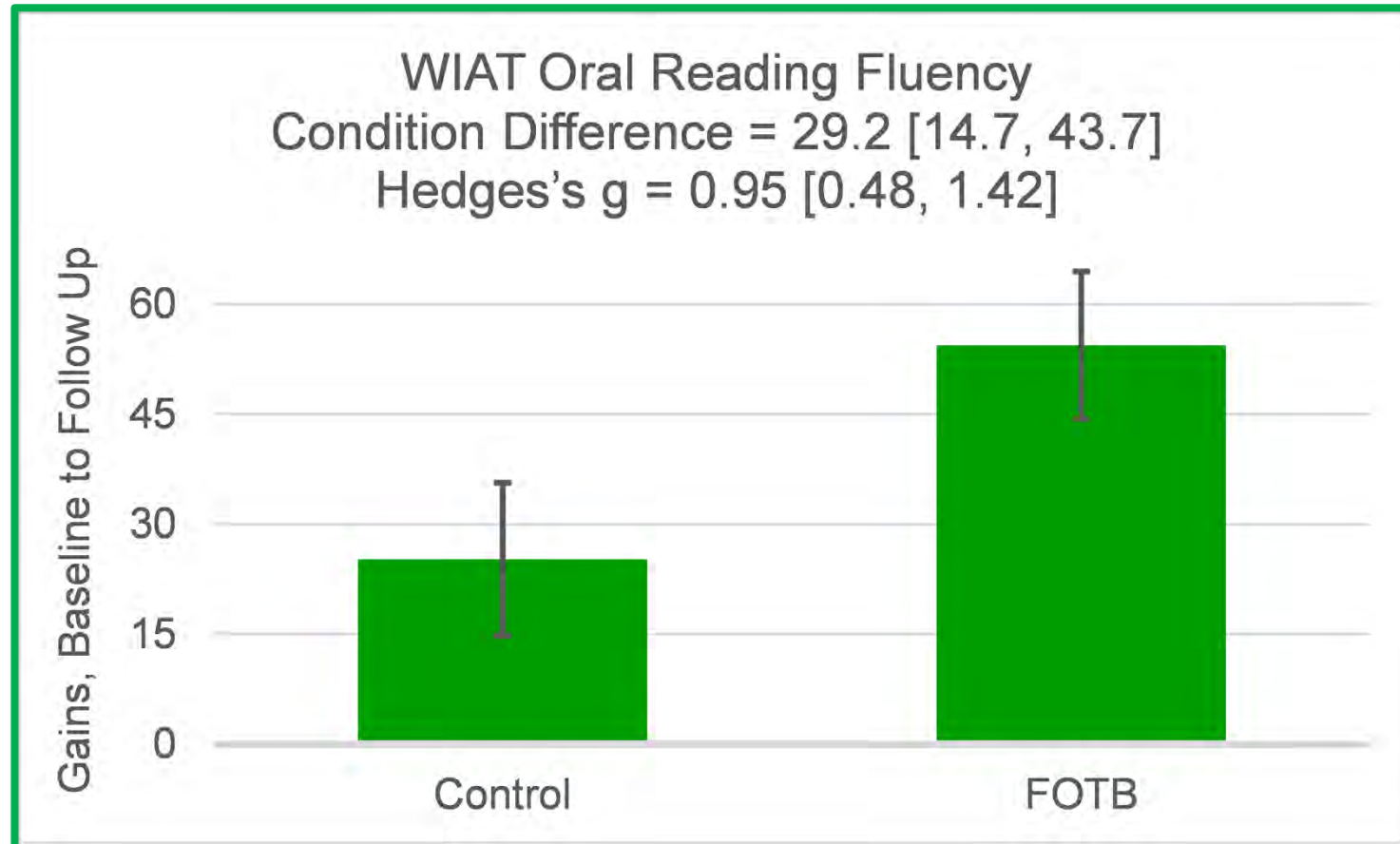
Pseudoword Decoding



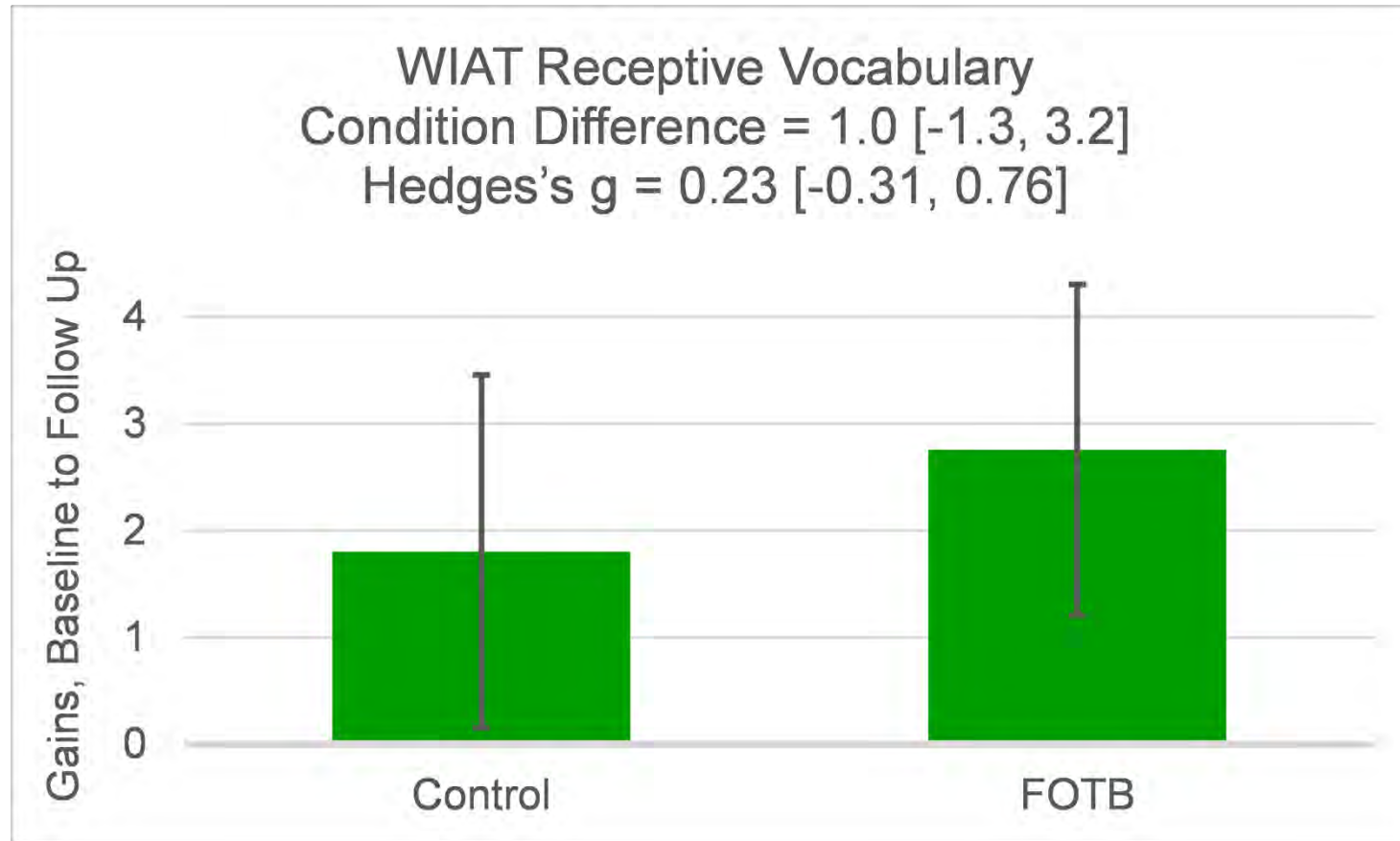
Word Reading



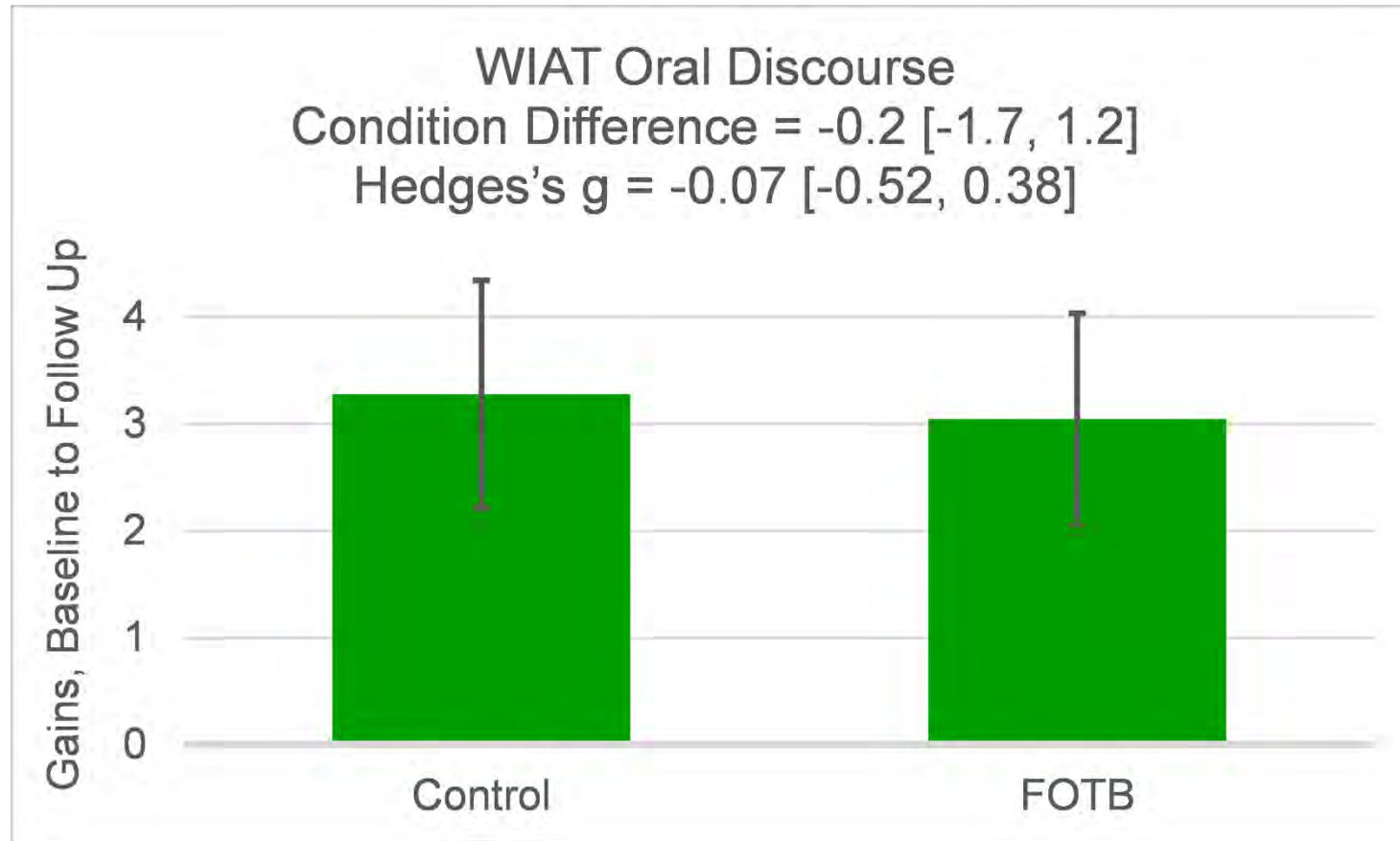
Oral Reading Fluency



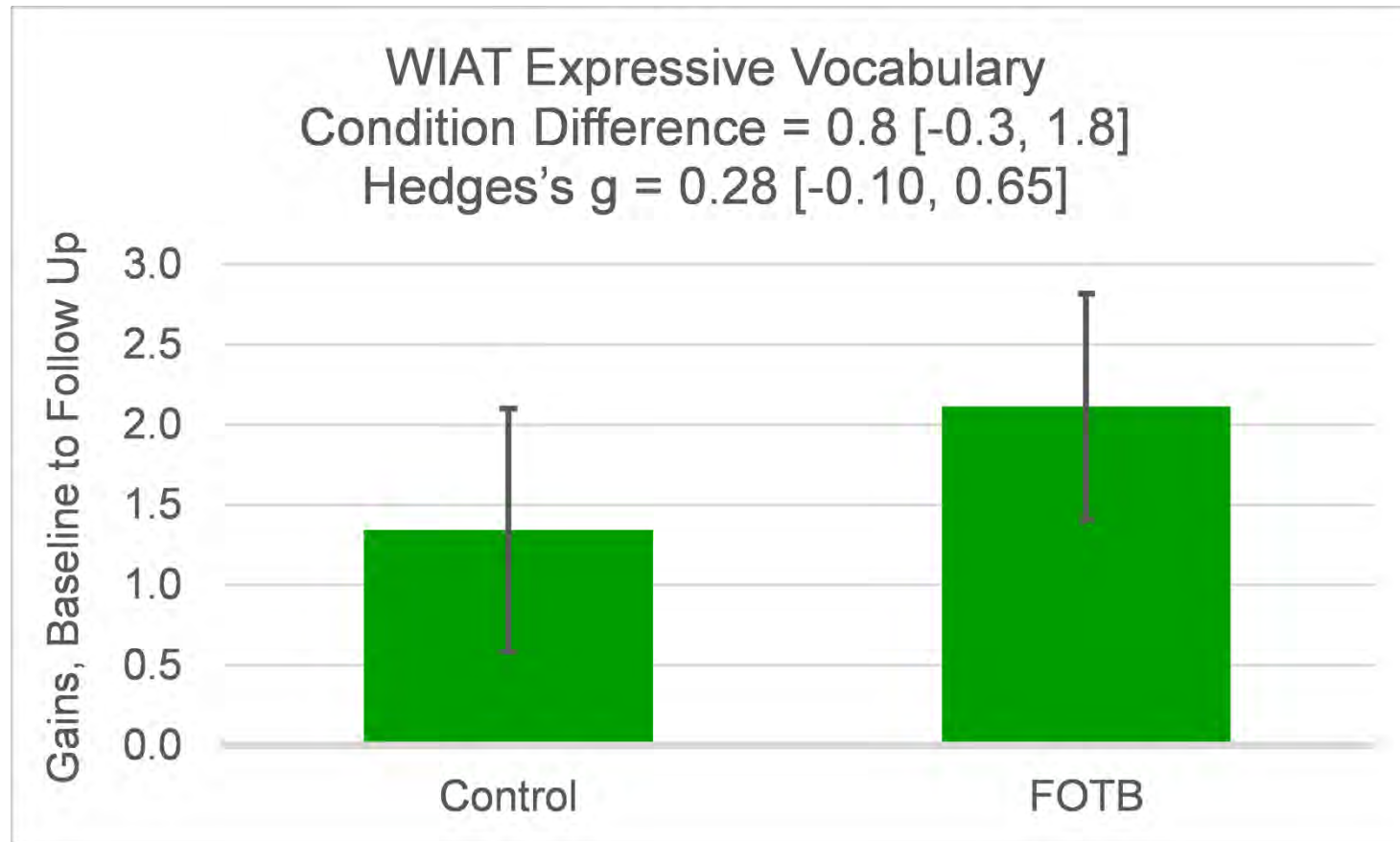
Listening Comprehension (Receptive Vocabulary)



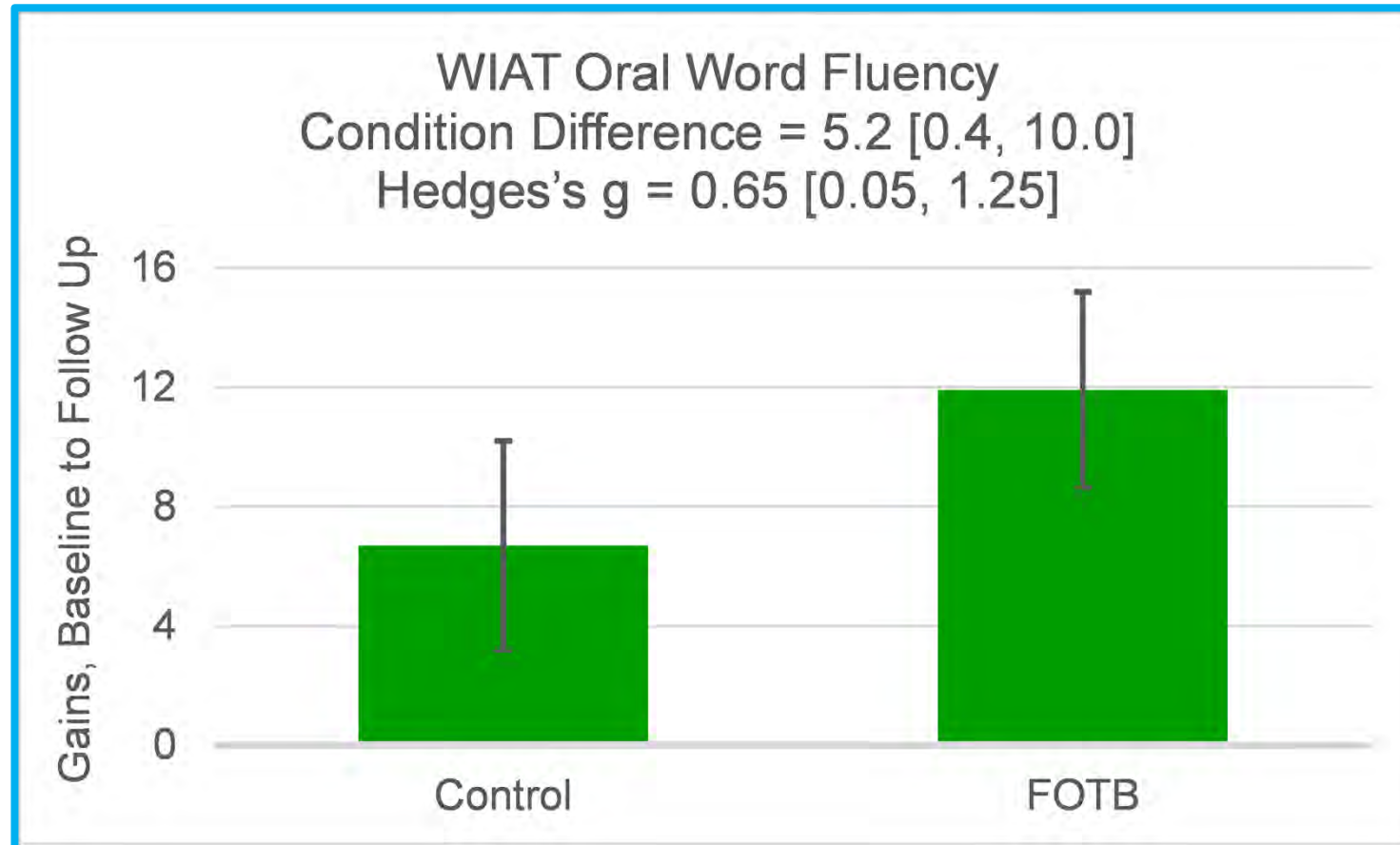
Listening Comprehension (Oral Discourse)



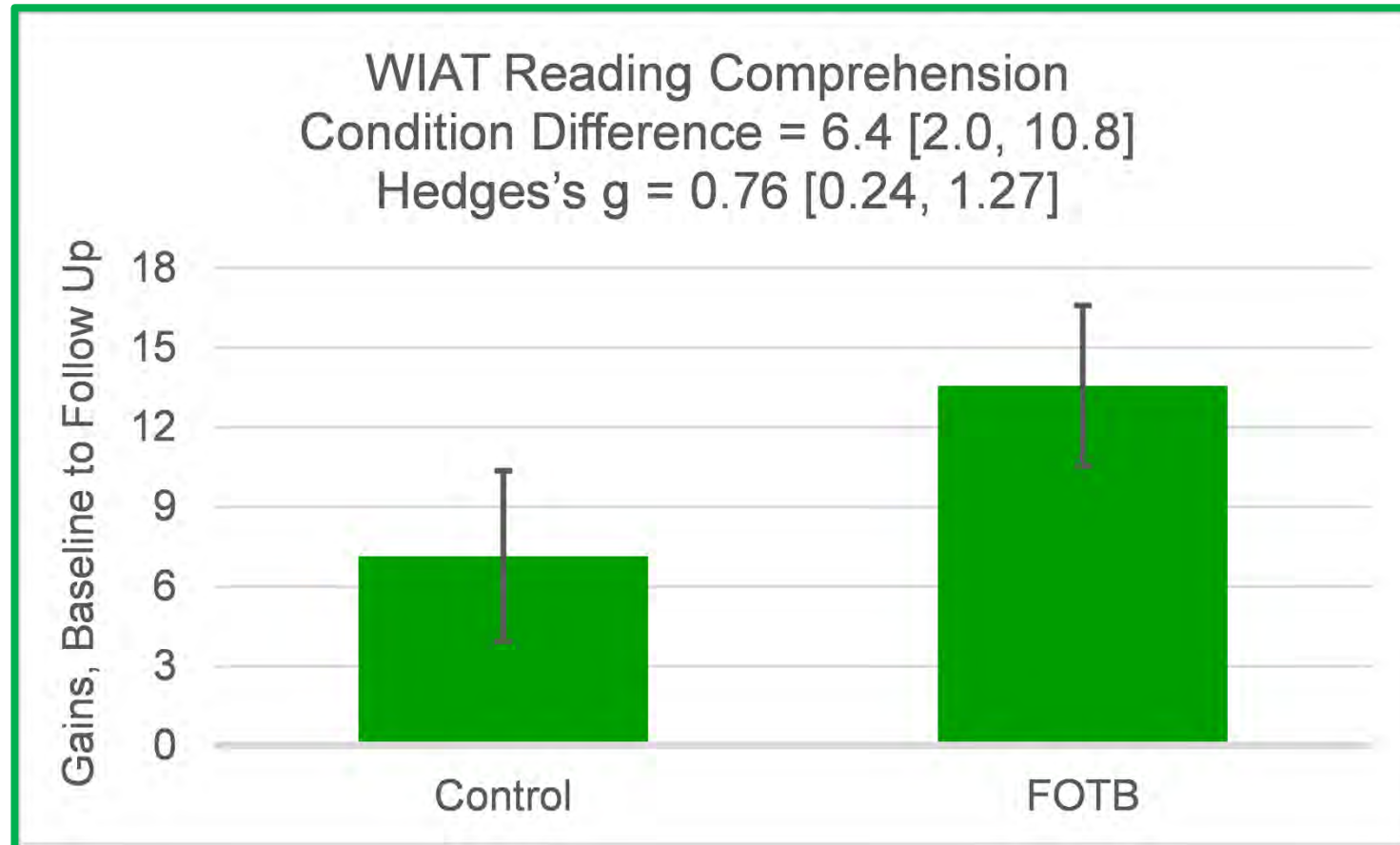
Oral Expression (Expressive Vocabulary)



Oral Expression (Oral Word Fluency)



Reading Comprehension



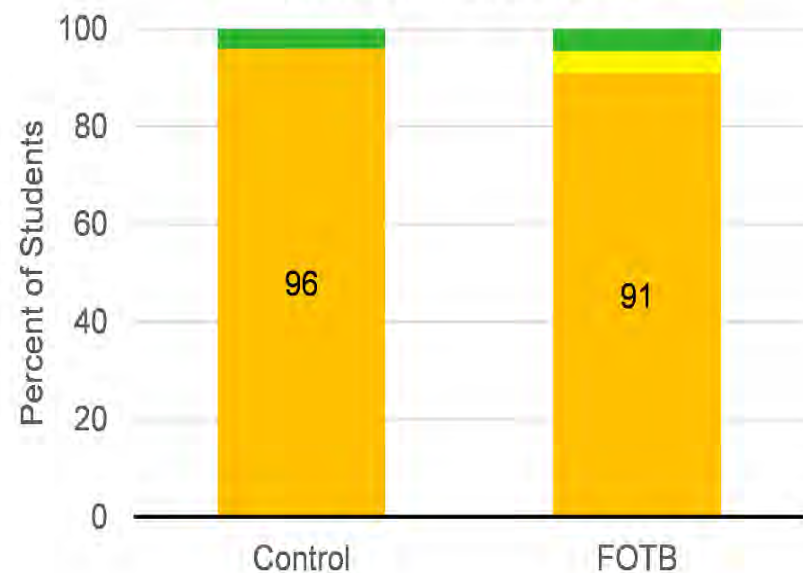
Follow-Up Results Summary (Cohort 1)

Baseline to Post	<i>p</i>	<i>g</i>
FOTB (proximal measure of target words)	.0006	1.2
CTOPP Blending	.0702	0.5
WIAT Pseudoword Decoding	.0326	0.6
WIAT Word Reading	.0326	0.4
WIAT Oral Reading Fluency	.0006	1.0
WIAT Receptive Vocabulary	.9388	0.0
WIAT Oral Discourse	.7561	-0.1
WIAT Expressive Vocabulary	.7606	-0.1
WIAT Oral Word Fluency	.4026	0.2
WIAT Reading Comprehension	.0176	0.7

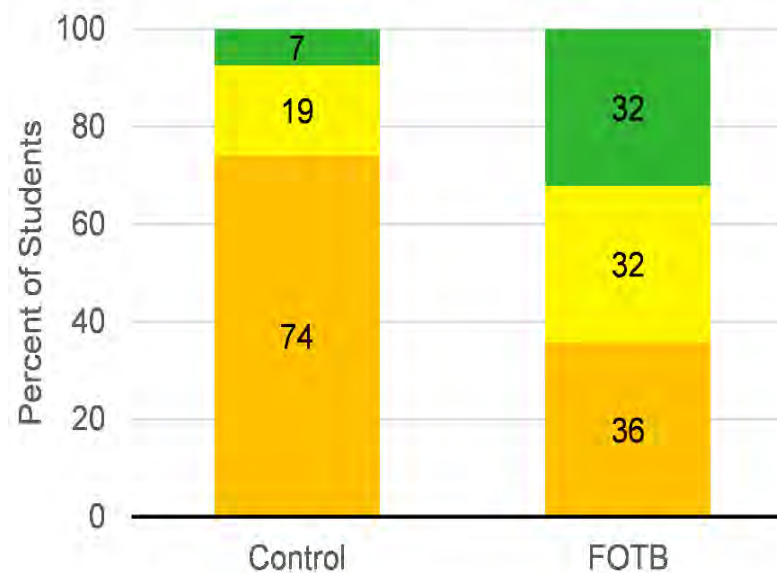
Baseline to Follow Up	<i>p</i>	<i>g</i>
FOTB (proximal measure of target words)	.0557	0.7
CTOPP Blending	.5247	0.2
WIAT Pseudoword Decoding	.0622	0.6
WIAT Word Reading	.0745	0.4
WIAT Oral Reading Fluency	.0033	0.95
WIAT Receptive Vocabulary	.5176	0.2
WIAT Oral Discourse	.7817	-0.1
WIAT Expressive Vocabulary	.2572	0.3
WIAT Oral Word Fluency	.0801	0.7
WIAT Reading Comprehension	.0303	0.8

Note. *p* values adjusted with Benjamini–Hochberg correction for 22 total tests

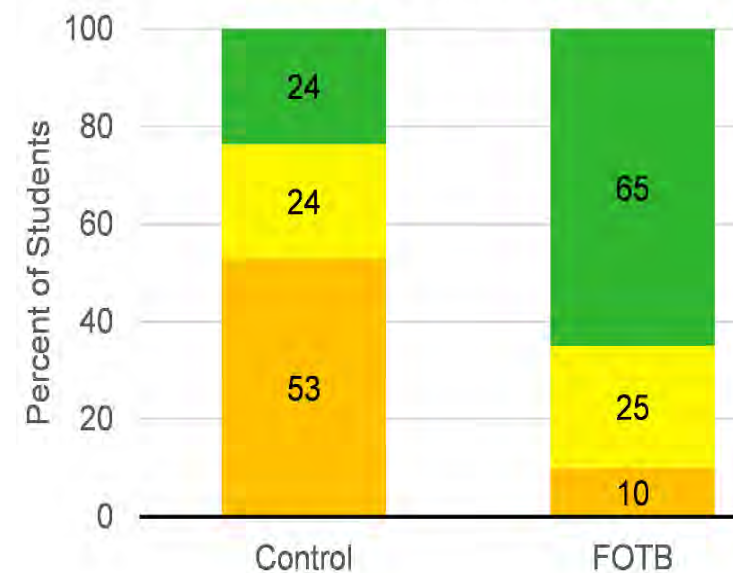
WIAT ORF at Baseline



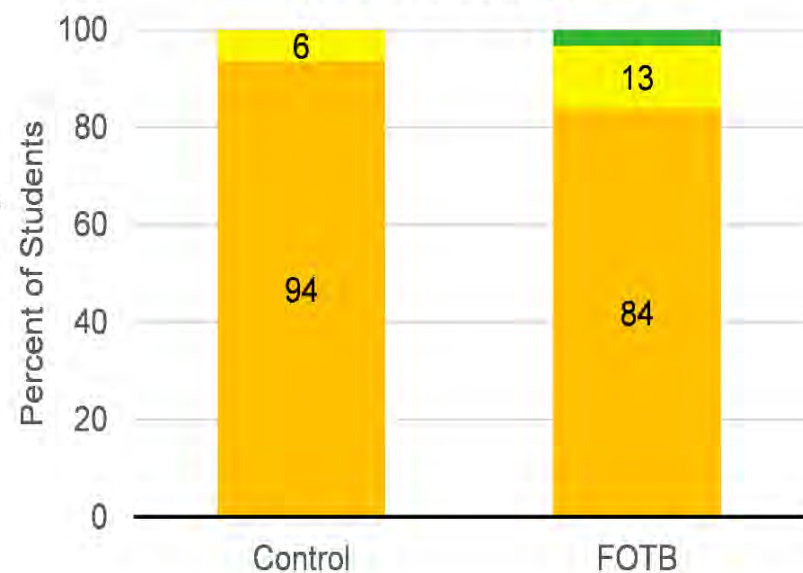
WIAT ORF at Posttest



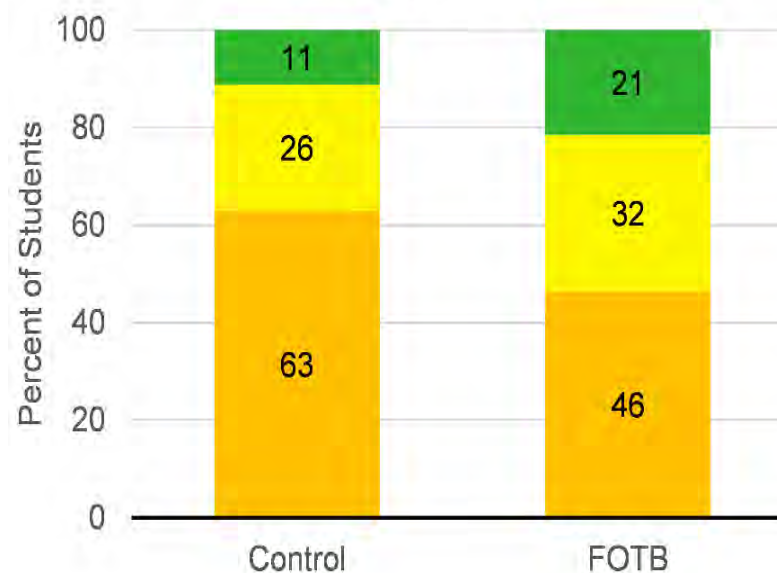
WIAT ORF at Maintenance



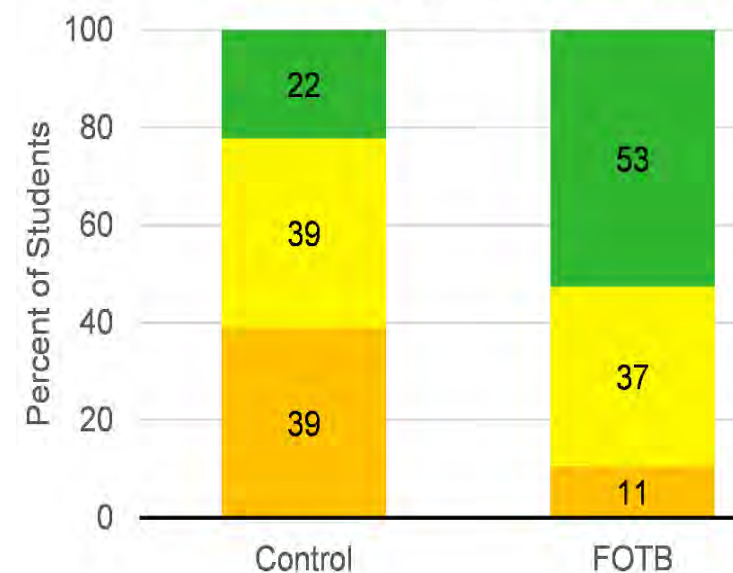
WIAT RC at Baseline



WIAT RC at Posttest



WIAT RC at Maintenance



Discussion



CEC 2026

SPECIAL EDUCATION
CONVENTION & EXPO

SALT LAKE CITY

MARCH 11-14, 2026

Fluency and Comprehension Gains across Cohorts



CEC 2026

SPECIAL EDUCATION
CONVENTION & EXPO

SALT LAKE CITY

MARCH 11-14, 2026

Positive Effects

- On proximal FOTB words nearly 1 SD (ES = .98)
- On more distal standardized assessments of reading skills
 - Largest for fluency (.82), then comprehension (.59), then word reading (.37), and pseudo word reading (.30).

Preliminary Positive Effects One Year After Intervention

- We were excited to see that reading fluency effects had an even higher magnitude (.95 or almost 1 SD) and that reading comprehension remained 0.8 ---- and trends remained positive for FOTB, word reading, pseudoword reading and fluency with moderate to strong effects!
- We hypothesize that students were getting better able to decode, and became automatic enough to learn from their reading instruction after we finished the RCT. This would be consistent with Share's Self-teaching Hypothesis.

Engagement and the Counterfactual



CEC 2026

SPECIAL EDUCATION
CONVENTION & EXPO

SALT LAKE CITY

MARCH 11-14, 2026

Similarities and Differences in Engagement and Context of Counterfactual

- Both received similar hours of instruction, 50 hrs
- But we saw differences in engagement that led to hours of engaged instruction (39 vs 25)
- We noted important differences at follow up for Cohort 1 – It is noteworthy that the state of Alabama was implementing reading reform – so the business as usual condition (for Cohort 2) and the instruction for all during the follow up year was more consistent with the Science of Reading than in Year1.

Questions



CEC 2026

SPECIAL EDUCATION
CONVENTION & EXPO

SALT LAKE CITY

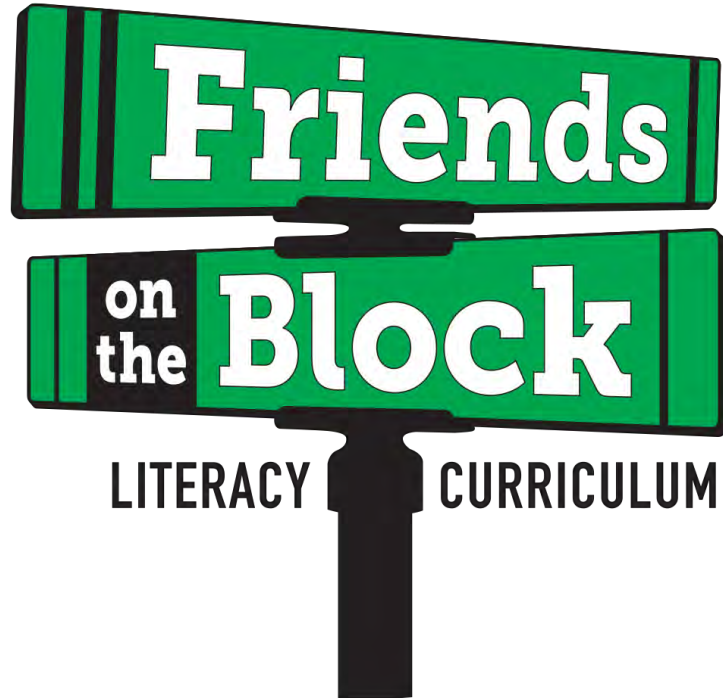
MARCH 11-14, 2026

Turn and Talk

What have you seen that stands in the way of student success with literacy intervention?



For More Information on Friends on the Block



[Overview & Demonstration Videos](#)

[FREE Materials](#)



[OSF Registries](#)



Acknowledgements Support for research and development provided by grants #H324K040011-05, R324A130102, and R324A200151 from the Institute of Education Sciences to Southern Methodist University. Jill Allor and Stephanie Al Otaiba acknowledge a financial interest in the Friends on the Block books and curriculum. The views expressed are those of the authors and have not been reviewed or approved by the granting agency.

Thank you!

Greg Benner, benner@ua.edu

Keith Smolkowski, keiths@ori.org

Stephanie Al Otaiba, salotaiba@smu.edu

Jill Allor, jallor@smu.edu

June Preast, jlpreast@ua.edu



CEC 2026

**SPECIAL EDUCATION
CONVENTION & EXPO**

SALT LAKE CITY

MARCH 11-14, 2026