CEC 2024 SPECIAL EDUCATION CONVENTION & EXPO SAN ANTONIO

Boosting the Reading and Language Growth of Students with Intensive Needs, including students with Intellectual and Developmental Disabilities

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June Preast, Charlotte Gregor, and Stephanie Hermecz

Agenda

- Why
- Study
- Intervention
- Results
- Case Studies
- Discussion
- Questions

Current Project Intensity Team

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Friends on the Block Research and Development

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Why

Literature Review:
Recent 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 development grant)*

- 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]

The Study

Primary Research Questions

Do students with intensive needs, including students with intellectual and developmental disabilities (IDD), who participate in FOTB demonstrate greater outcomes compared to students who participate in BAU reading instruction?

- Reading
- Language

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)

Participant Mean Average IQ

- Composite Kaufman Brief Intelligence Test Second Edition (KBIT-2)
- 73.1 (Range: 40 to 106)
- Note: KBIT scores are typically higher than scores on complete IQ measures

Mean Dosage

- Weeks of Instruction: 36.9
- Hours of Instruction: 52.5
- Minutes per Week: 86.1 (almost 1.5 hours)
- Level Completed: 12 (out of 14 FOTB levels)

Participants

- 58 elementary-aged students
  - Control: 28
  - Treatment: 30
- Mean age at beginning of intervention:
  - Control: 7.6 (SD=1.5)
  - Treatment: 7.6 (SD=1.1)

Participants

- Gender: 59% male, 41% female
- Race: 57% African American, 34% White, 9% Hispanic/other
- Disability labels:
  - 12% Intellectual Disability
  - 47% Developmental Delay
  - 14% Autism (IQ mean=64.4; SD=17.6)
  - 19% Specific Learning Disability
  - 2% Speech/ Language Disorder
  - 3% Other Health Impairment/ Attention Deficit Hyperactive Disorder
  - 3% Not Available

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-IV Oral Reading Fluency*

Language Variables & Measures

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

Think and Write

What is the biggest challenge you face in teaching students with intensive needs to read?

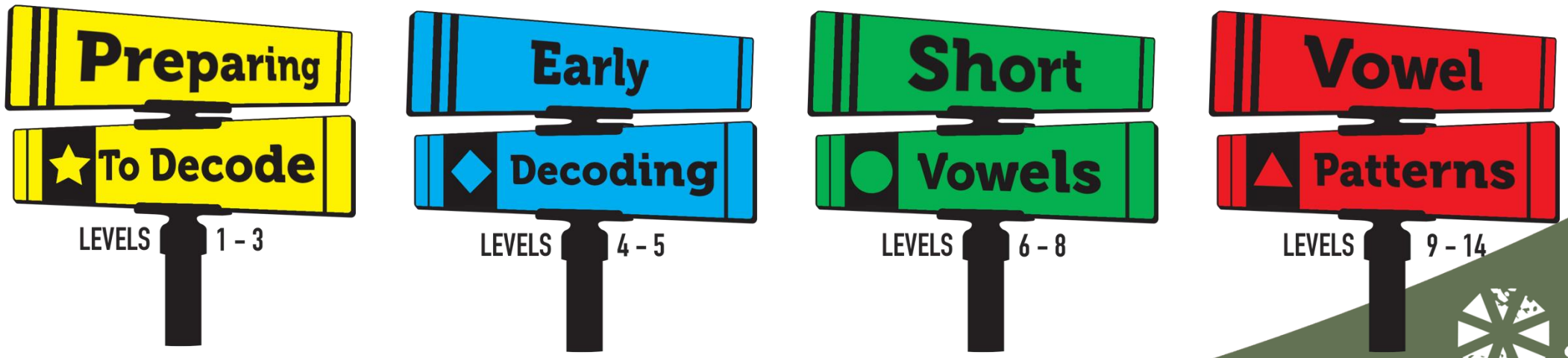
Intervention

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 115 learning games that provide specific cumulative practice of skills
- Organized into 14 levels that span four stages of skill development



What research supports it? Applies Existing Research

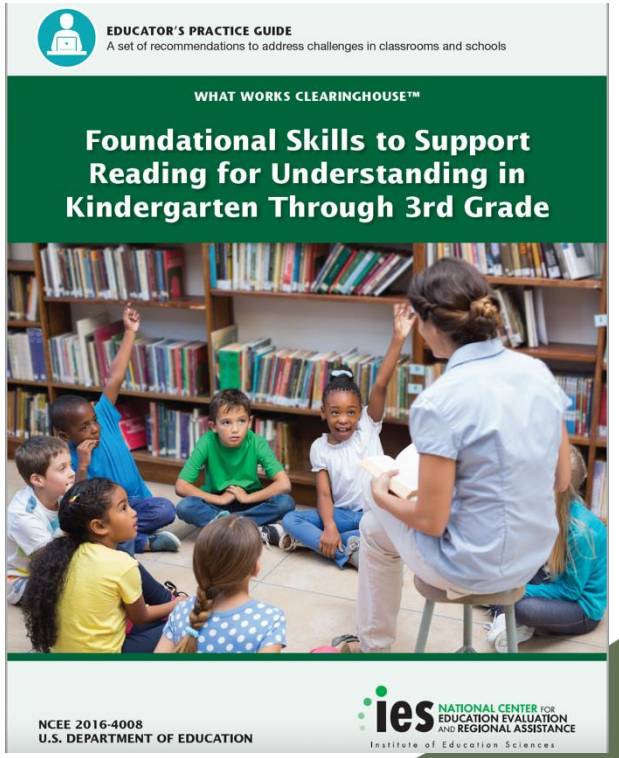
(Coyne et al., 2006; Kame'ennui et al., 2002; Coyne al al., 2011)

Principles of Effective Instruction	
Explicit	step-by-step modeling with many examples and clear explanations
Systematic	orderly, carefully sequenced and thorough; organized from simple to complex; skills are integrated
Scaffolding	temporary support that is faded over time
Ample Practice Opportunities	intensive; organized flexibly to provide sufficient practice for students with varying needs
Immediate Corrective Feedback	clear and positive; ensures students do not practice skills incorrectly
Ongoing Progress Monitoring	informal measures included; aligns with instruments based upon scientific research

Research: Evidence-based practices AND innovation

- National Reading Panel (2000)

- WWC Practice Guide (2016)



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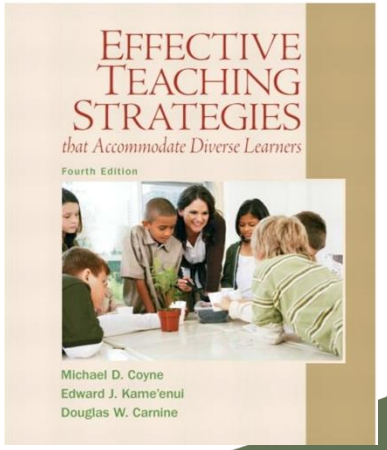


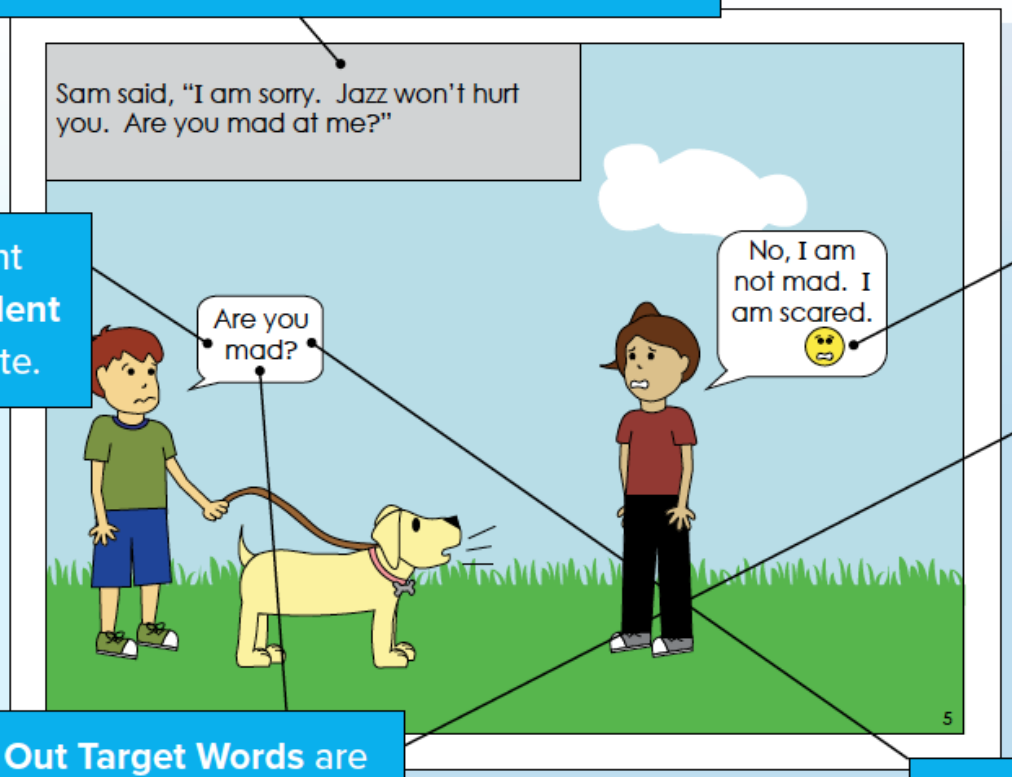
What makes Friends on the Block Special?

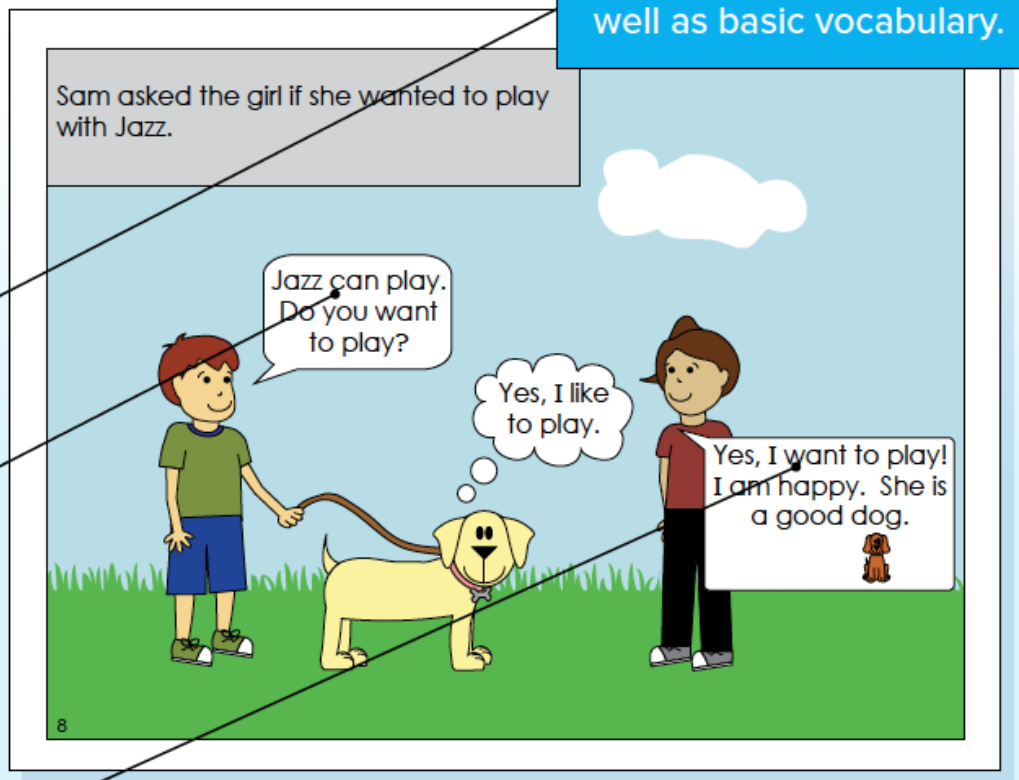
- Multicriteria Student Books
  - Decodable with extensive cumulative review
    - Includes only words that have been taught or that can be decoded based on the skills taught
  - Features enable students to begin reading in a book, with support, in the very first lesson
  - Culturally diverse
  - Natural sounding sentences that reflect spoken language to facilitate comprehension
  - Meaningful stories in common settings (familiar)
  - Fiction and Nonfiction with simple illustrations and photographs that enhance meaning and engagement
- Easily customized and highly engaging (student books and games)

LEVEL 4 BOOK SAMPLE PAGES

A friend (teacher, tutor, family member, peer) reads **Helper Text** in gray boxes. Helper Text improves the story and supports comprehension and vocabulary.

A few **Picture Words** improve the story and support meaning, as well as basic vocabulary.





The student reads **Student Text** in white.

Sound It Out Target Words are decodable words that are also high-frequency words.

Read It Target Words are irregular or temporarily irregular high-frequency words.

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 hat mad ran run sad sun up us	big did got him if in it mom not on sit stop this will with	bed best end get help let next red step tell them then went when yes	came fine five gave home hope like made make nine same side smile time white	cold day hold may old plain play rain roll say stay tail told wait way	all call clean each eat feel green neat need read see seem small tall wall	after better chapter different hard high light might never night number part right start together	before below door follow forget goal know more morning own road short show slow yellow	bird book burn cook disturb girl good hook hurt shirt stood third took turn wood
Read It Words (Irregular)	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
	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 came clothes cold eat food for from need oh out put ready some	about animal been day does down every many one 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 word work	almost book bought break buy easy four 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.

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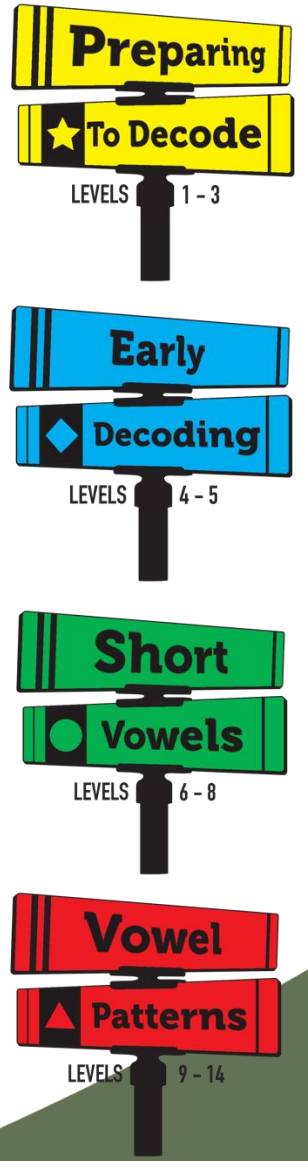

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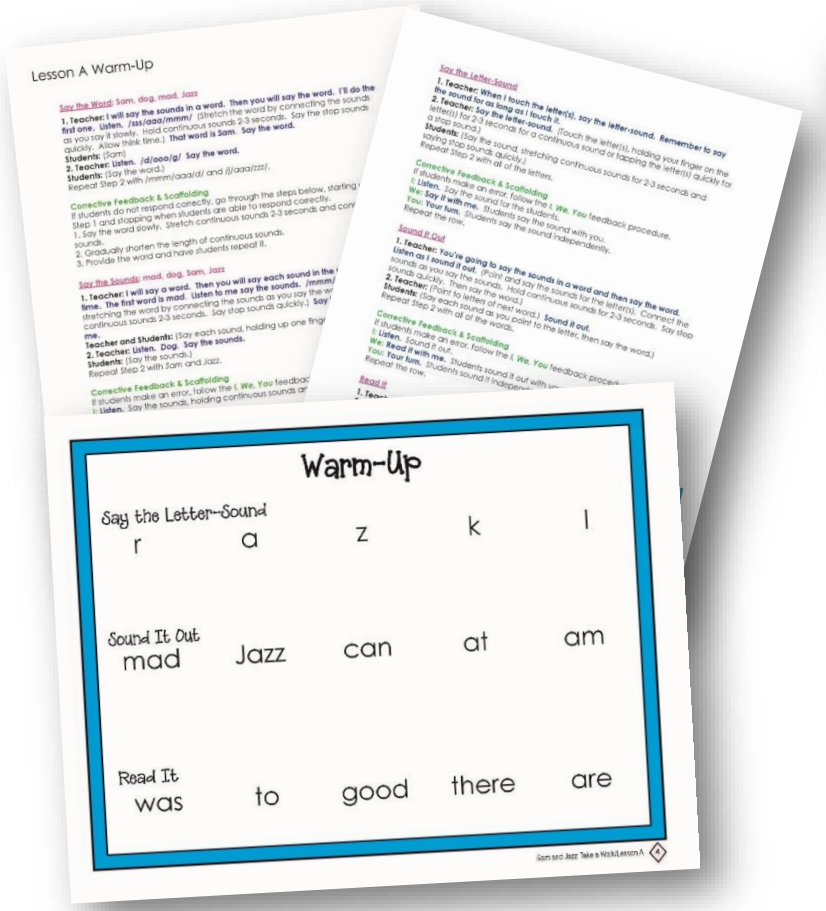
A Typical Lesson (Flexible: About 30 minutes)

Level 4 Example

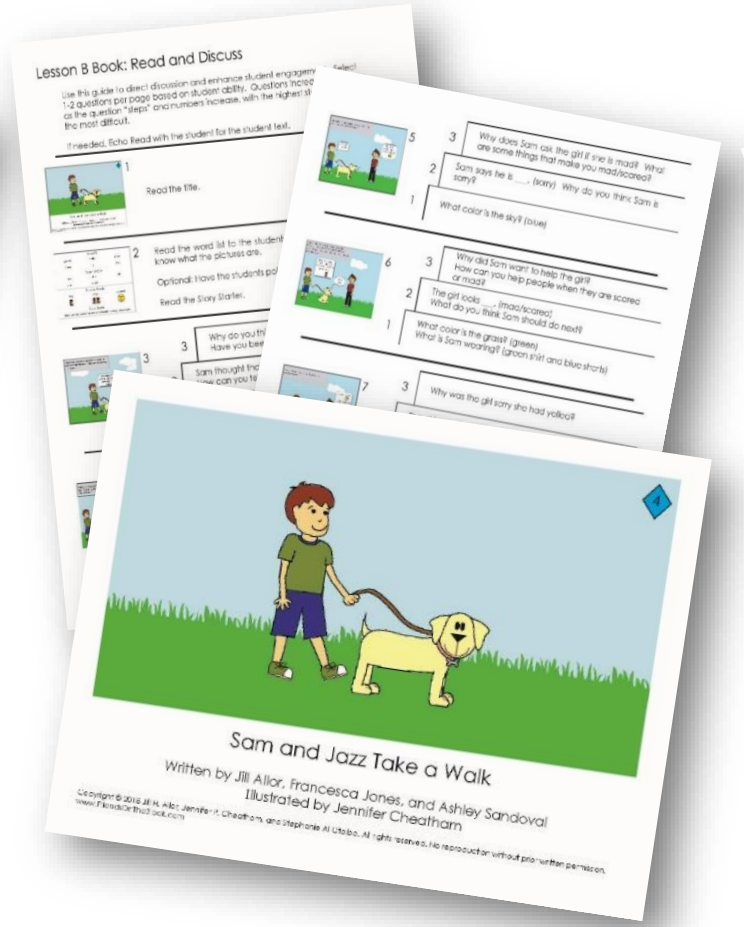
Part 1: Warm-Ups

5-8 minutes



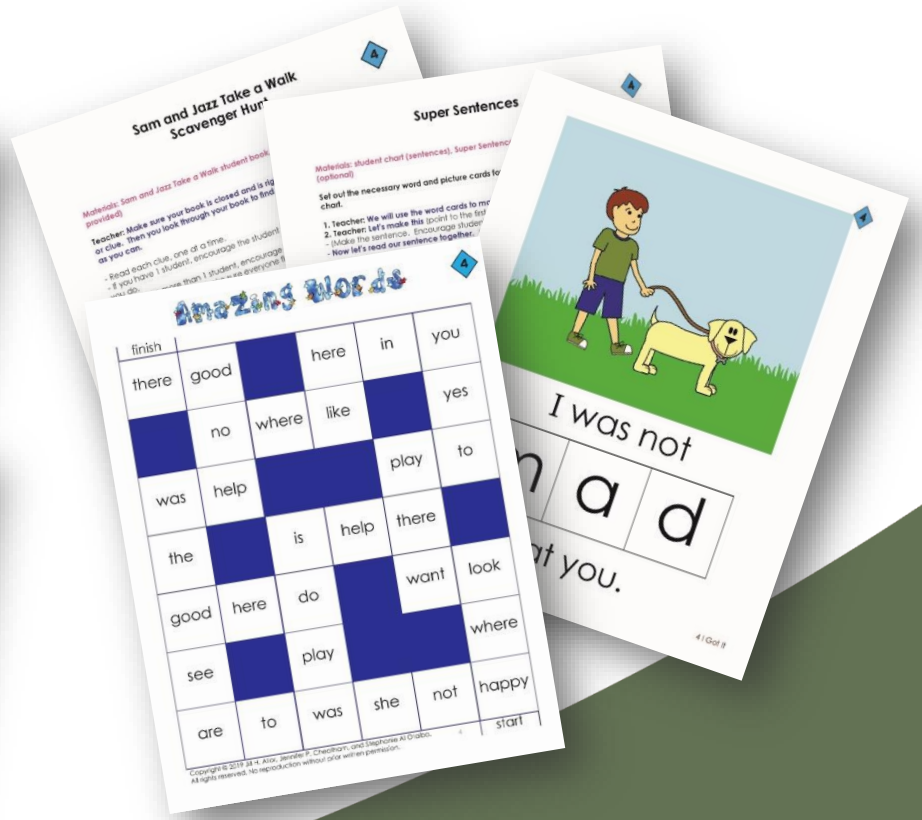
Part 2: Book Reading

10-15 minutes



Part 3: Learning Games

5-10 minutes



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A Typical Lesson (Flexible: About 30 minutes)

Level 10 Example

Part 1: Warm-Ups

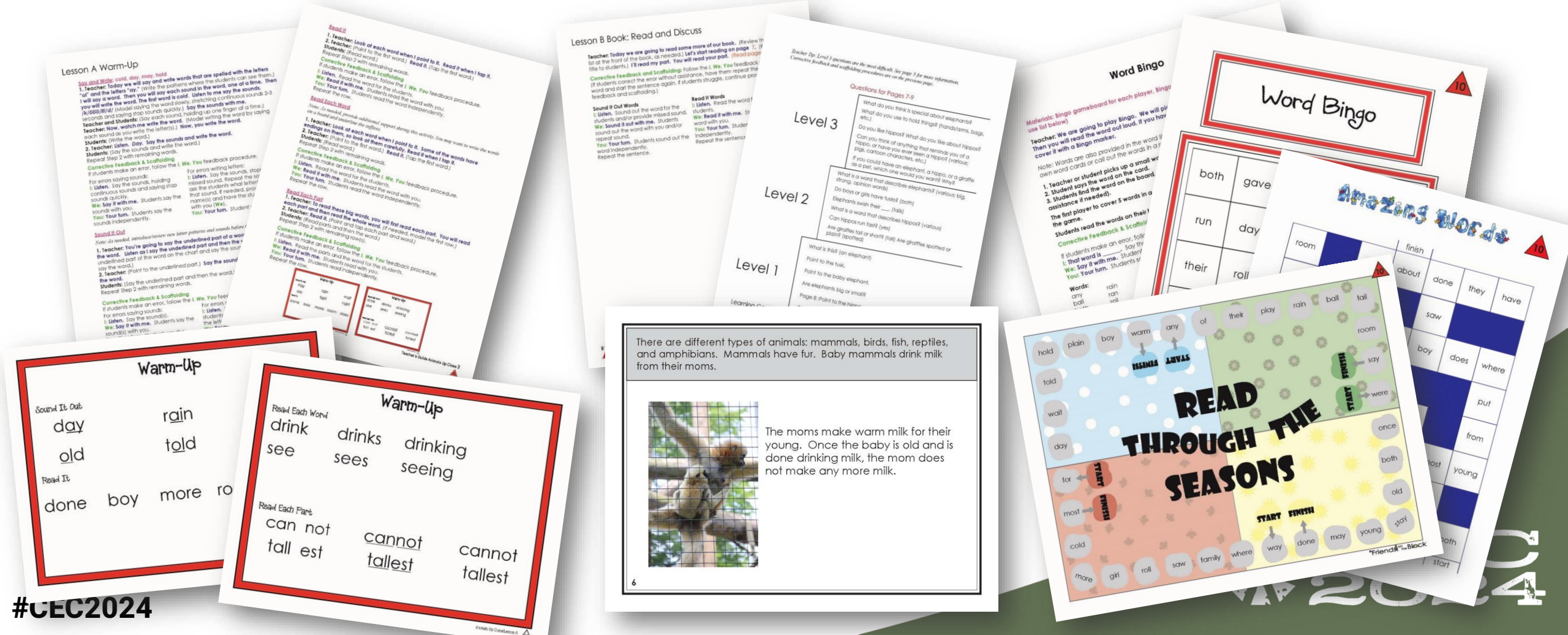
5-8 minutes

Part 2: Book Reading

10-15 minutes

Part 3: Learning Games

5-10 minutes



Scope and Sequence

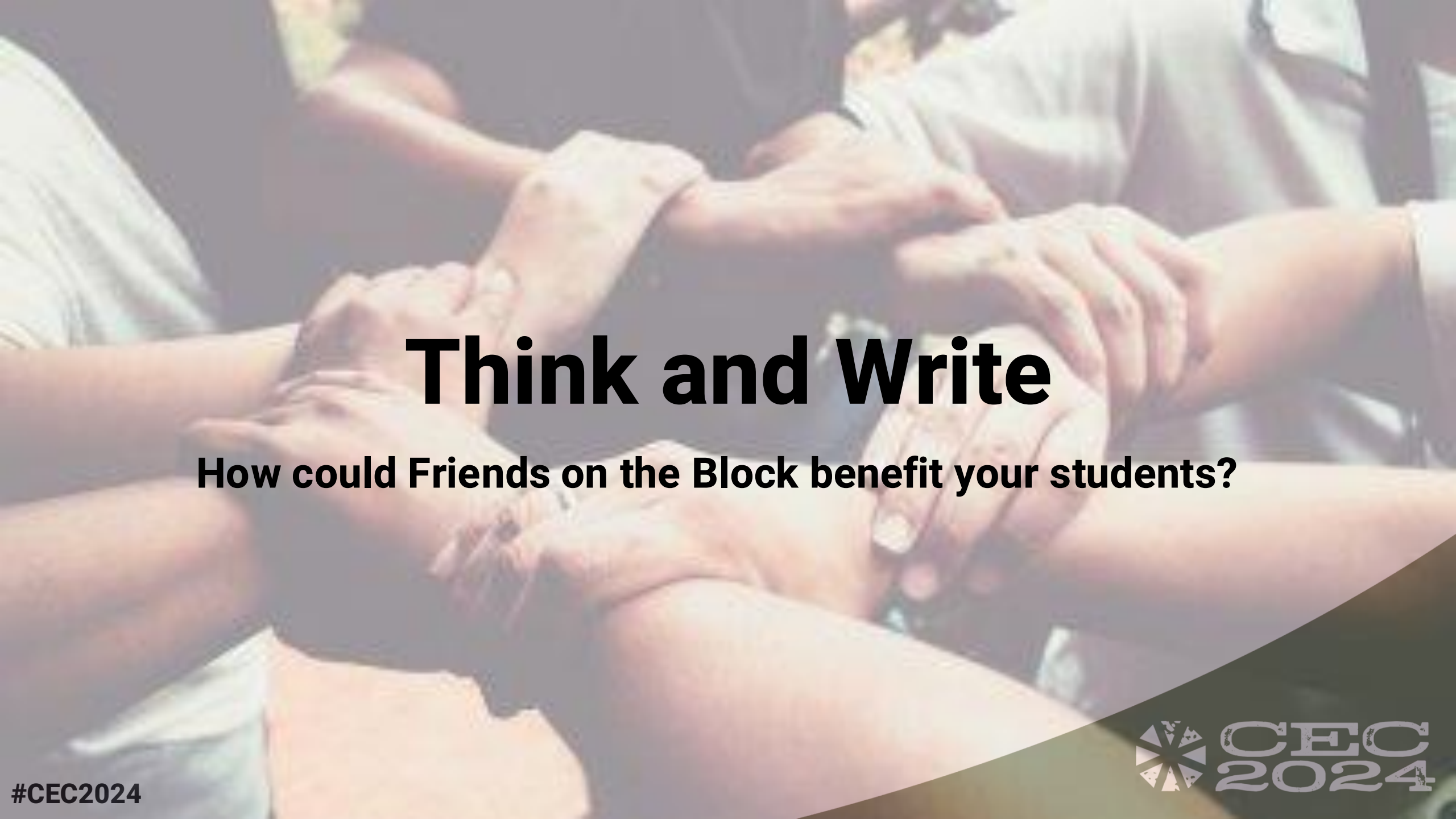
- Focuses on key skills within all strands of word recognition and language
- Facilitates integration of skills across strands and apply as they read books

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*				

Lessons can be easily customized by…

- Selecting the appropriate starting level with our simple placement test
- Deciding when to move from one level to the next
  - Students do not need to read all the books and complete all the lessons in each level
  - They move to the next level as soon as they know most of the target words in that level
  - Students with intensive needs will need to read more of the books and complete more of the lessons before moving to the next level; other students may move through the levels more quickly
- Selecting games to practice specific skills based on student need
- Adjust amount of time spent on book reading and games (we recommend doing ALL 3 parts of every lesson – warmup, book, game)



Think and Write

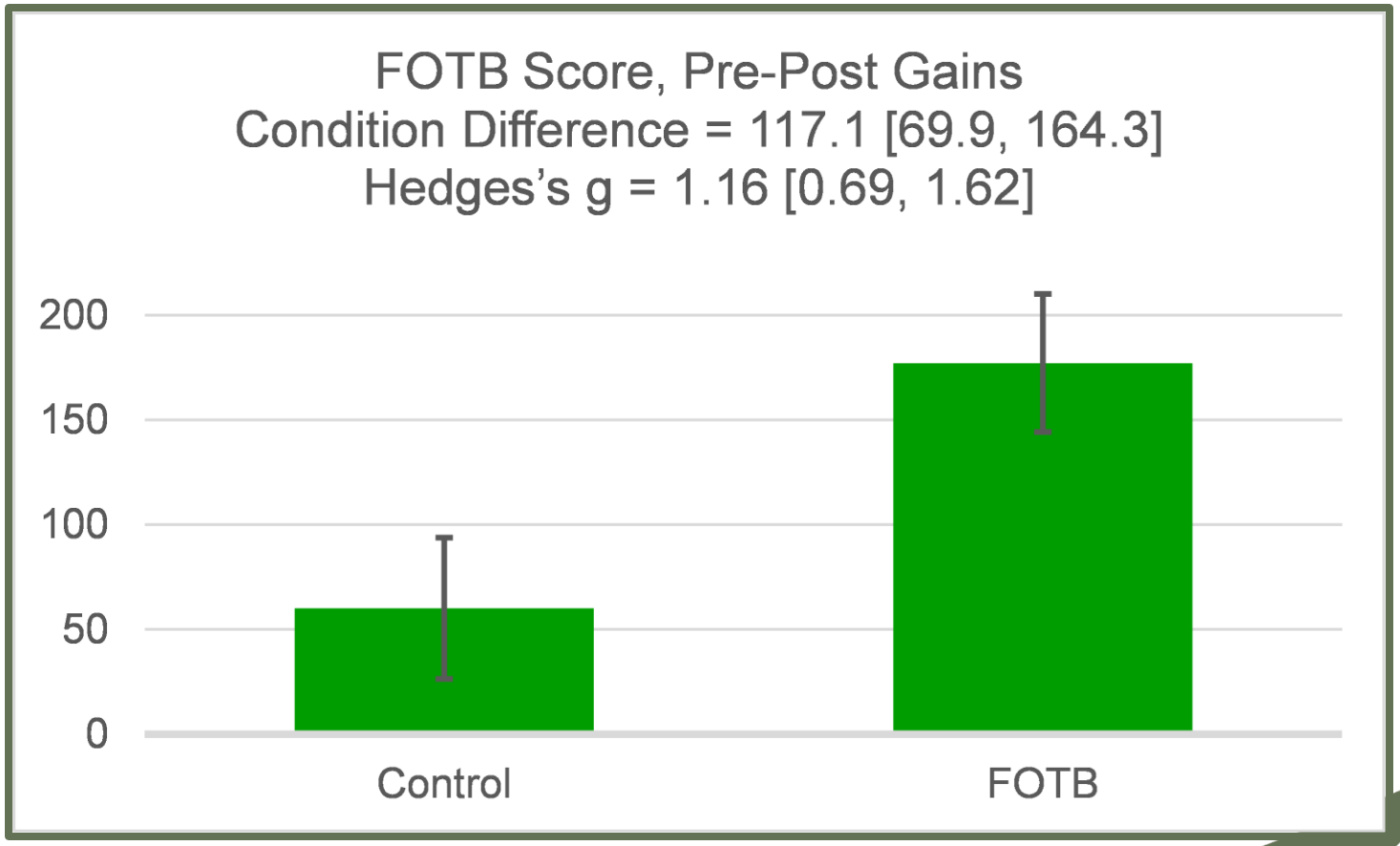
How could Friends on the Block benefit your students?

Results

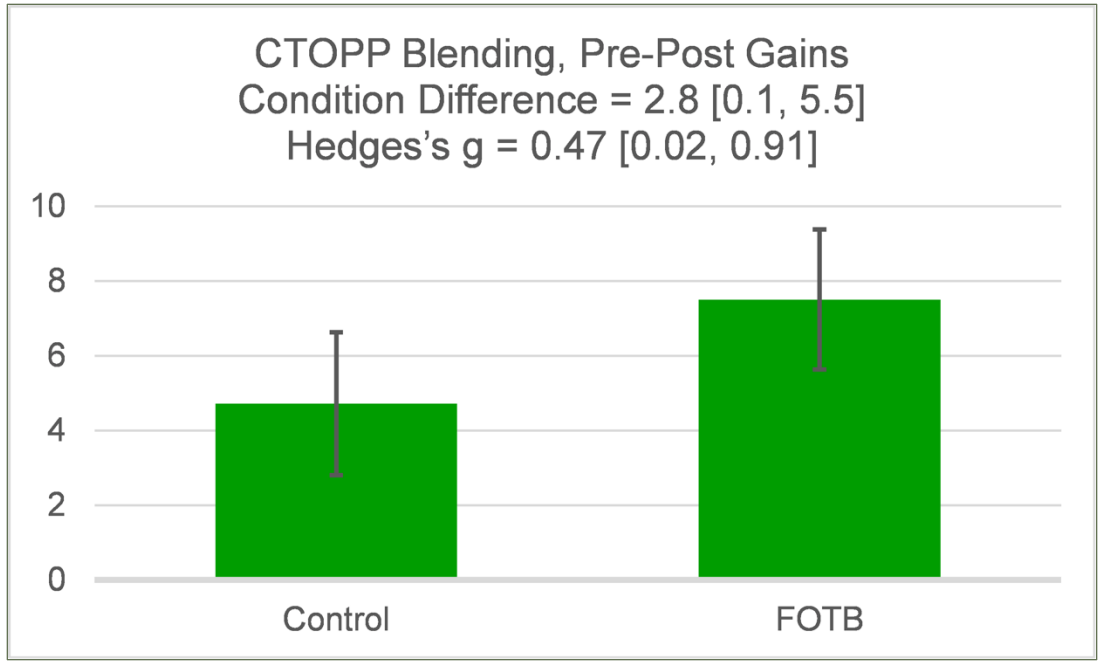
Results Overview

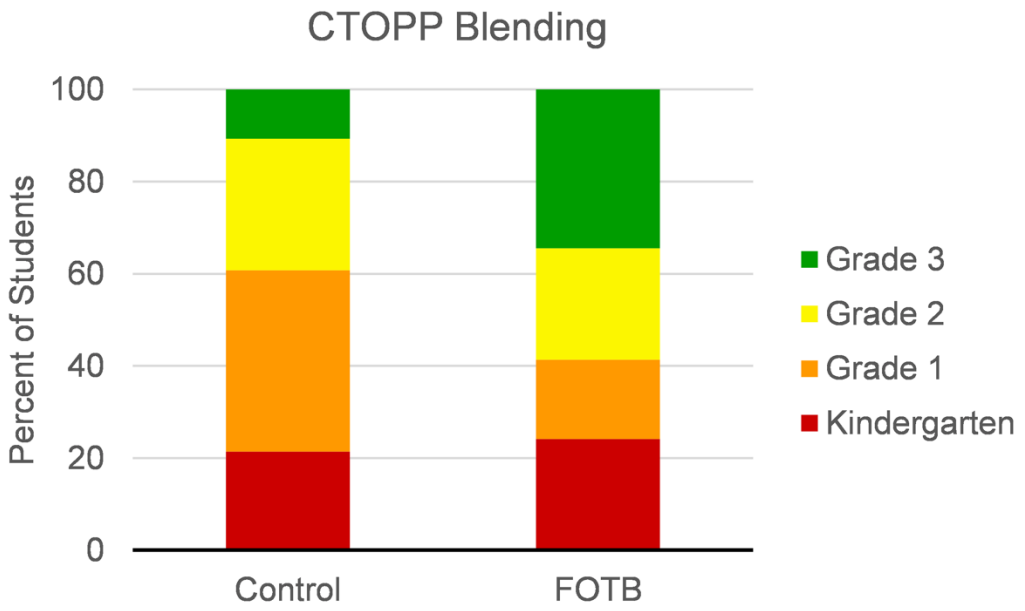
- Preliminary results—first cohort of two cohorts of students
- Analyzed 22 measures—reporting a representative summary
  - Proximal measure for FOTB
  - Phonemic Awareness
  - Pseudoword Decoding
  - Word Reading
  - Reading Fluency
  - Listening Comprehension
  - Oral Expression
  - Reading Comprehension

Proximal measure for FOTB

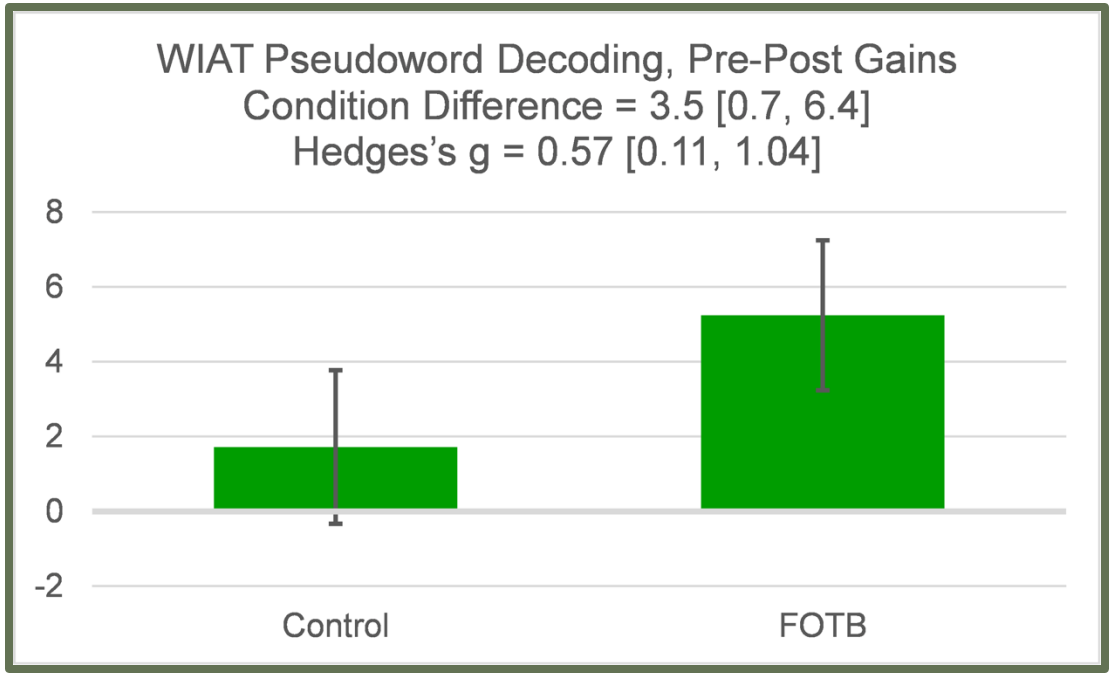


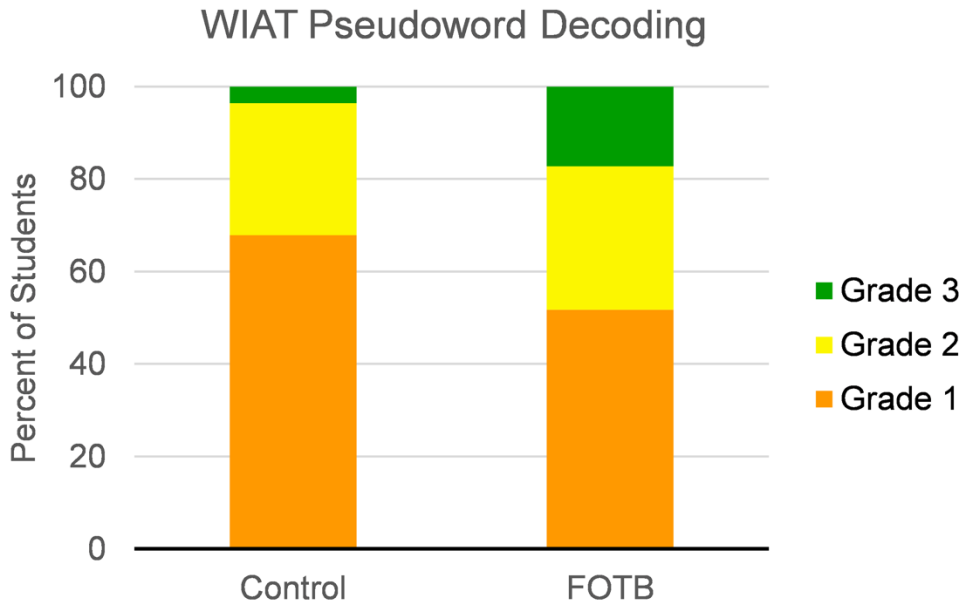
Phonemic Awareness



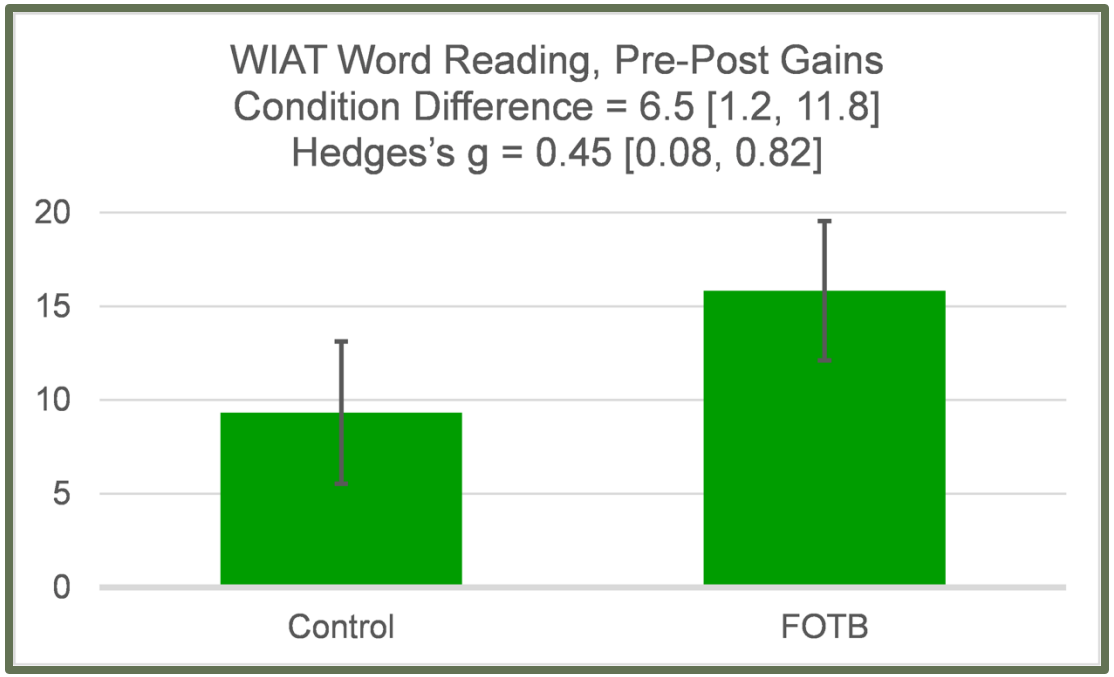


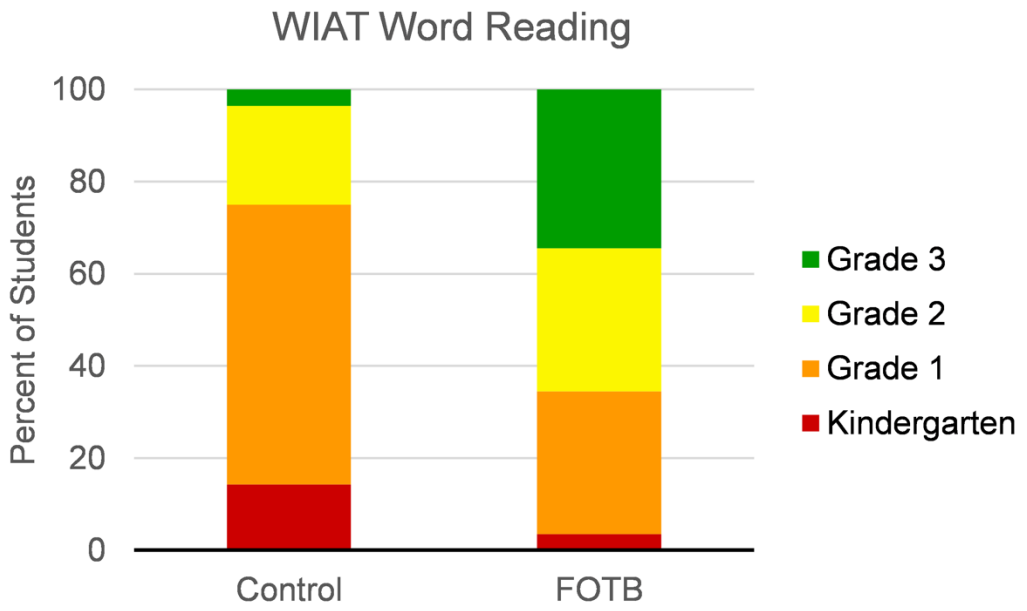
Pseudoword Decoding



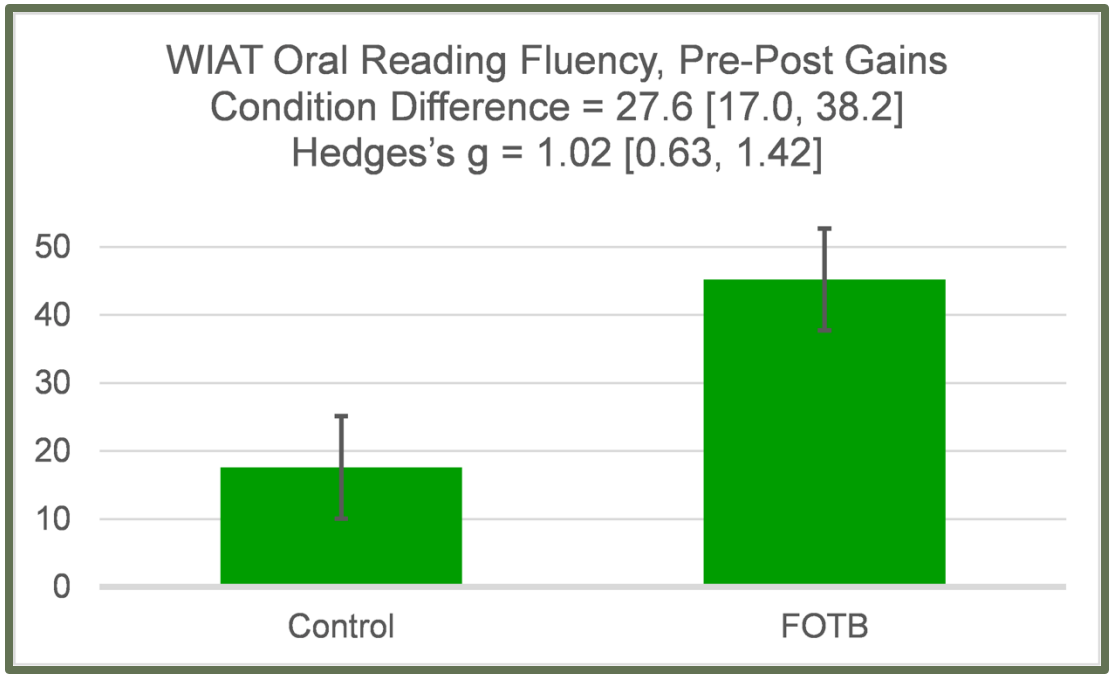


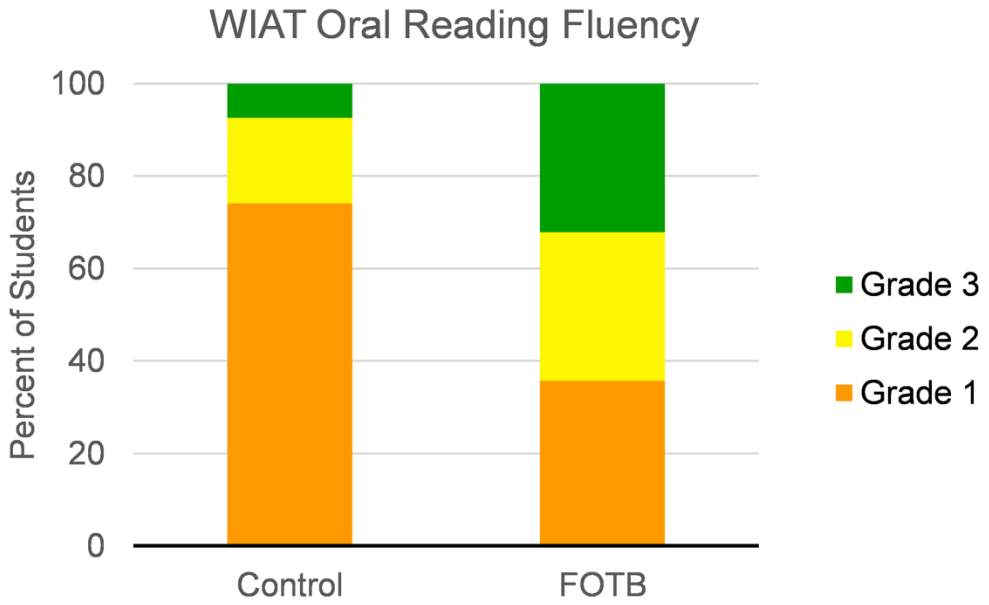
Word Reading



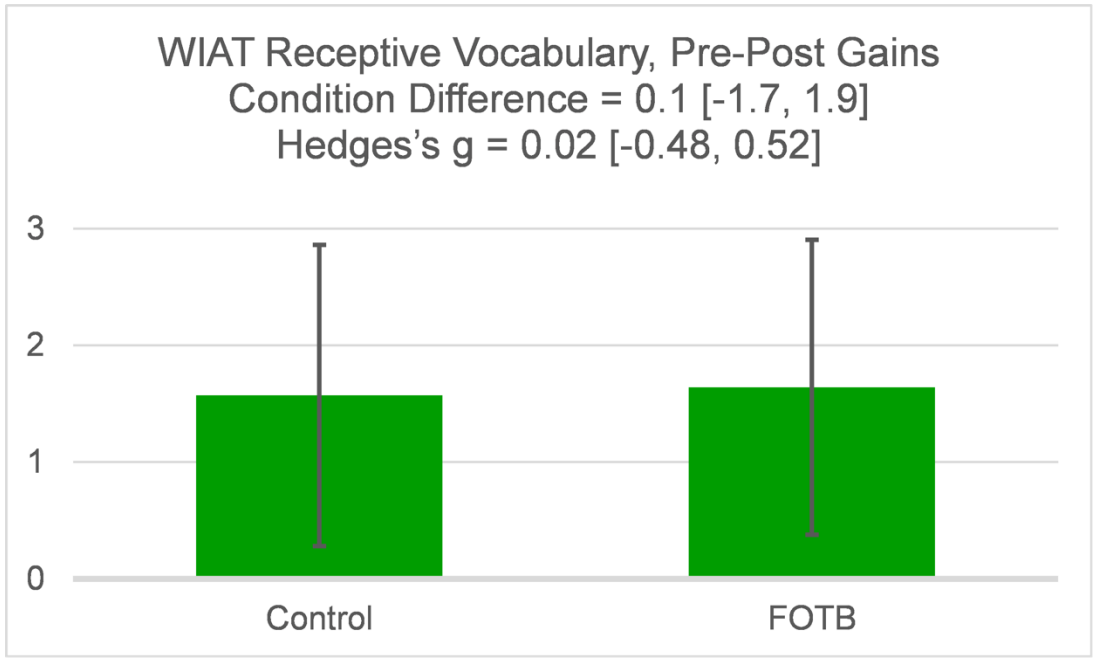


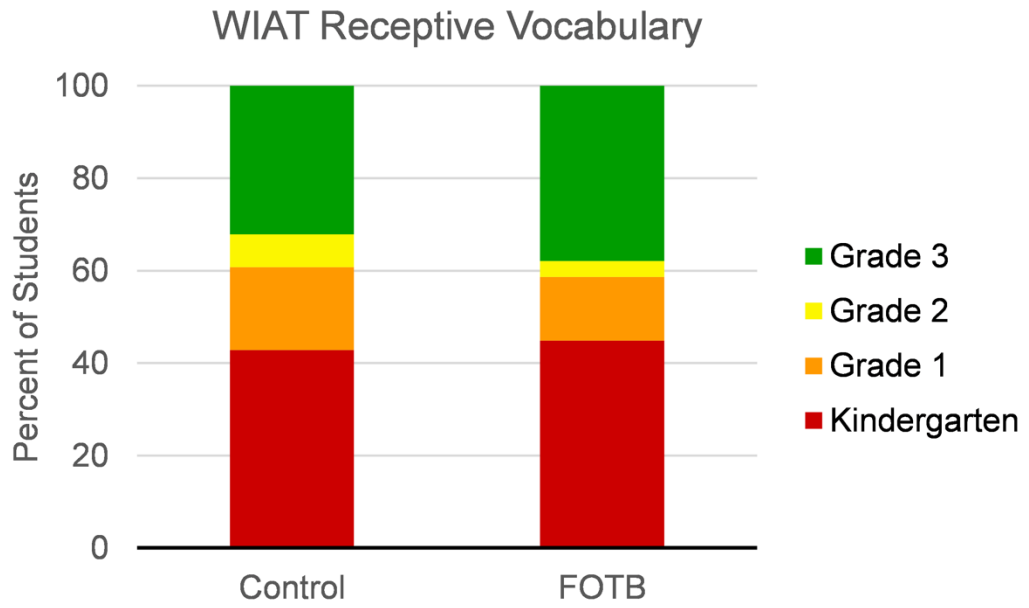
Oral Reading Fluency





Listening Comprehension





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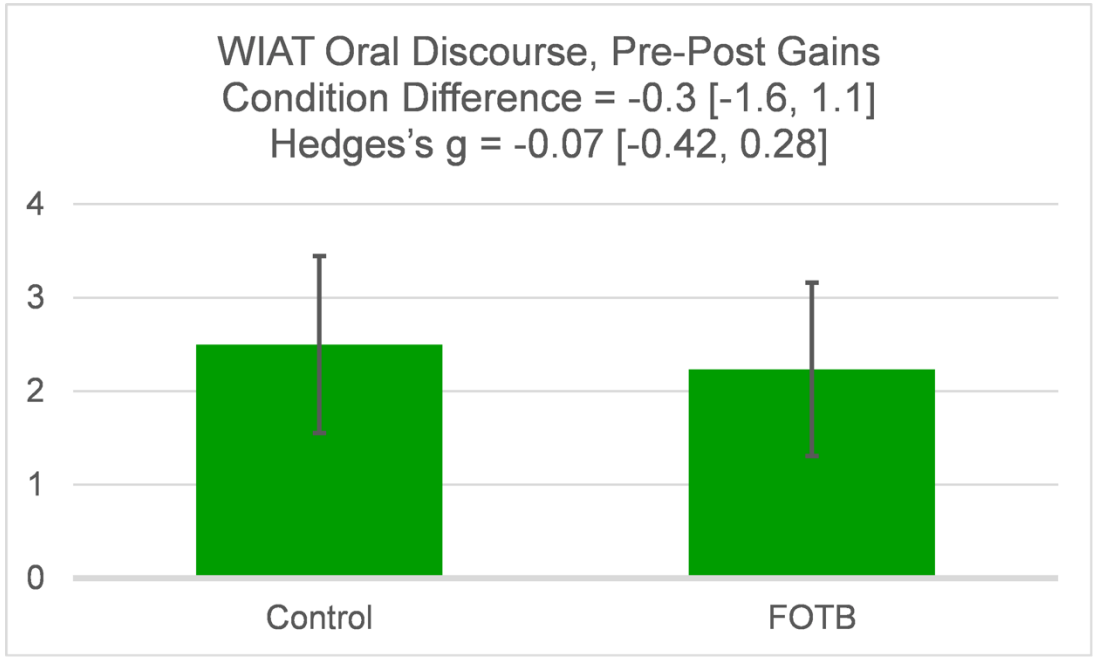
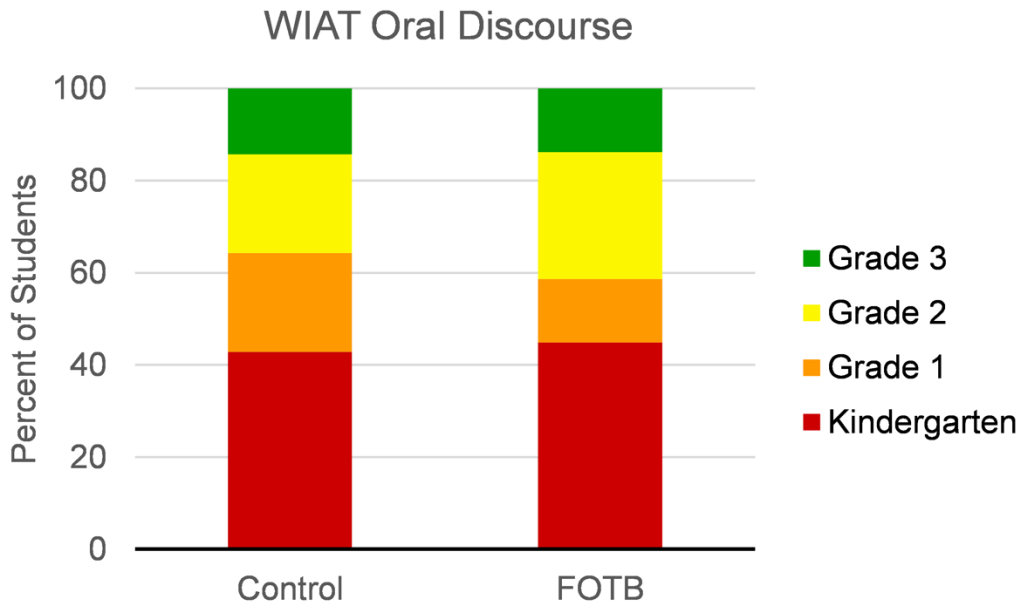
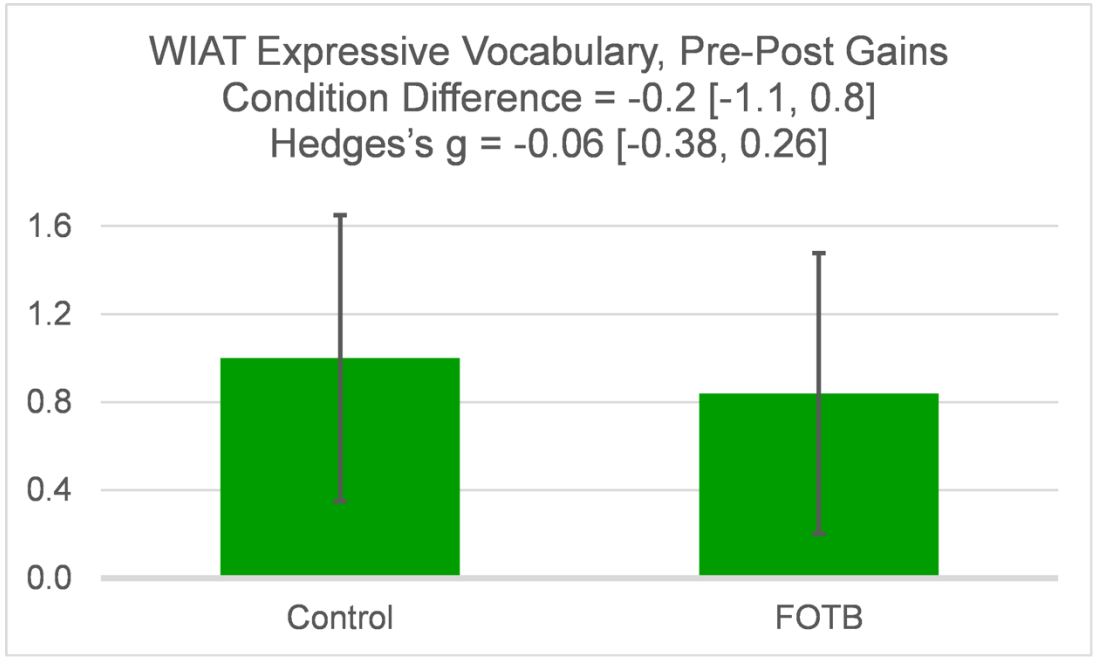
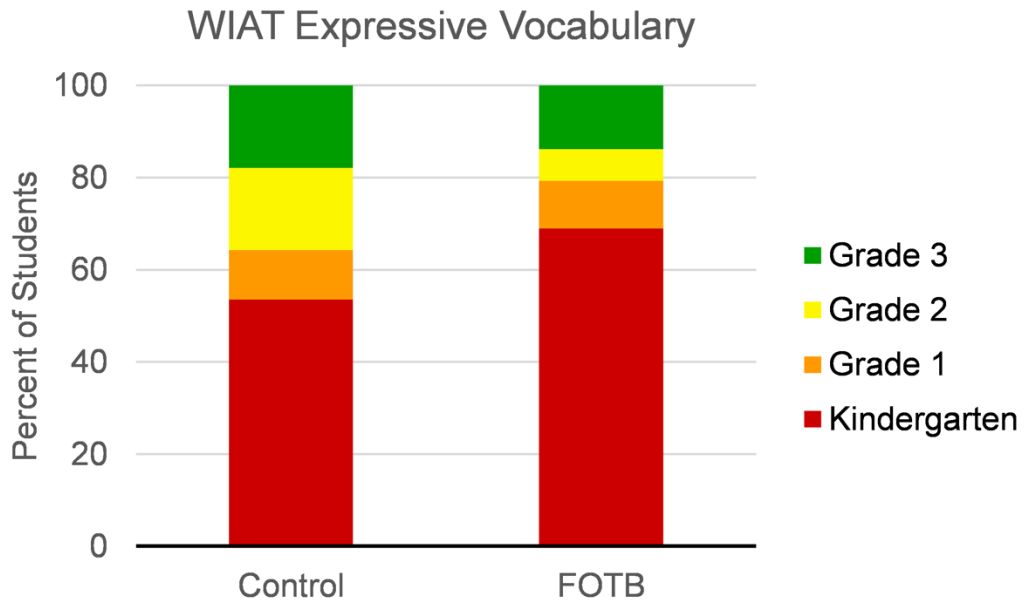


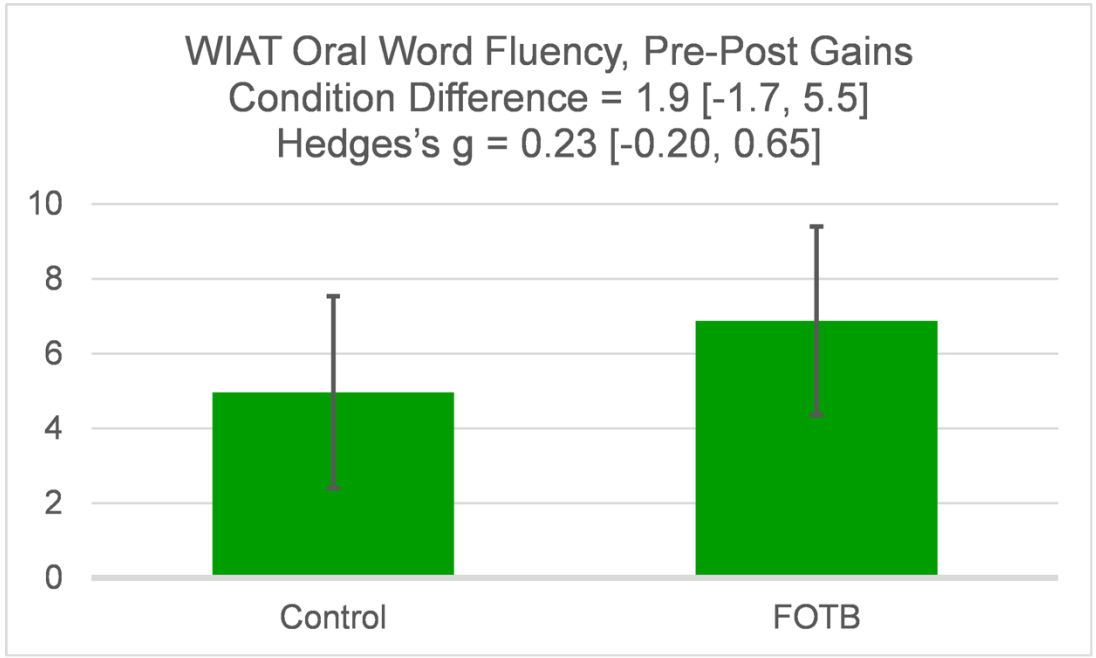


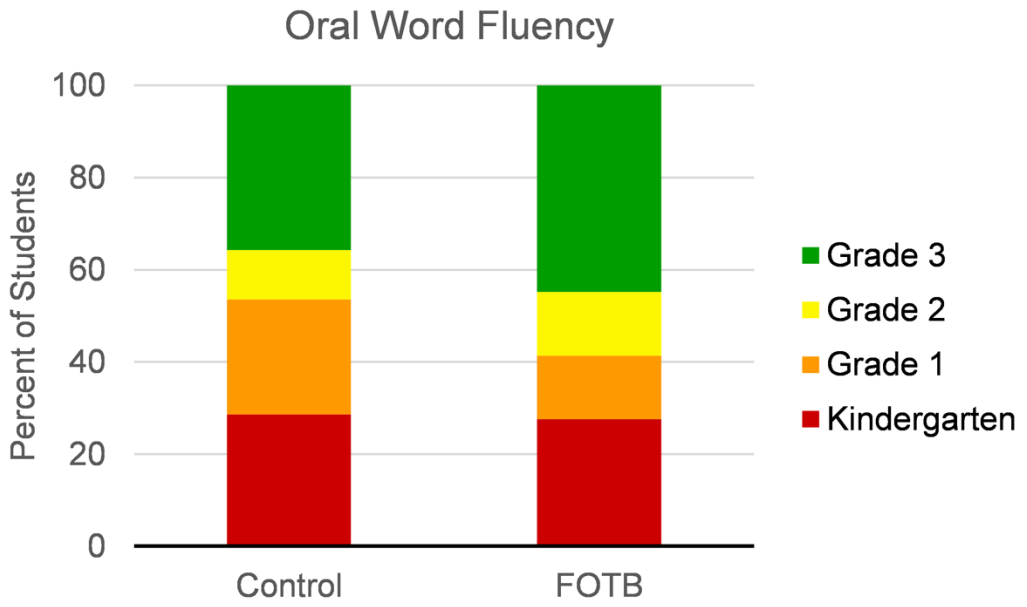
Oral Expression



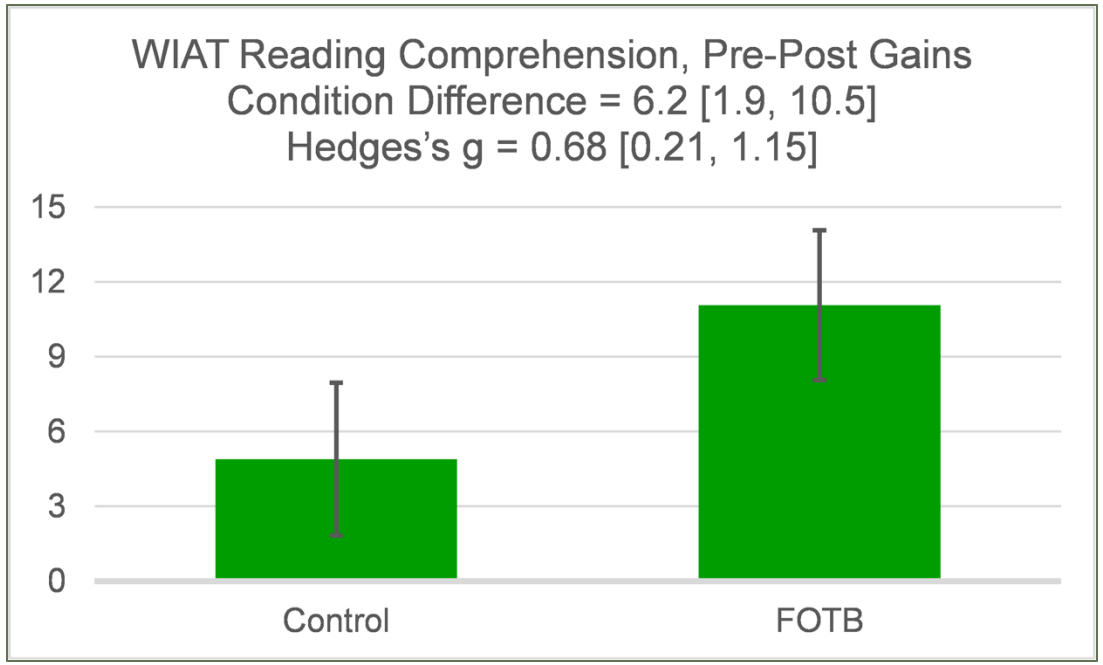


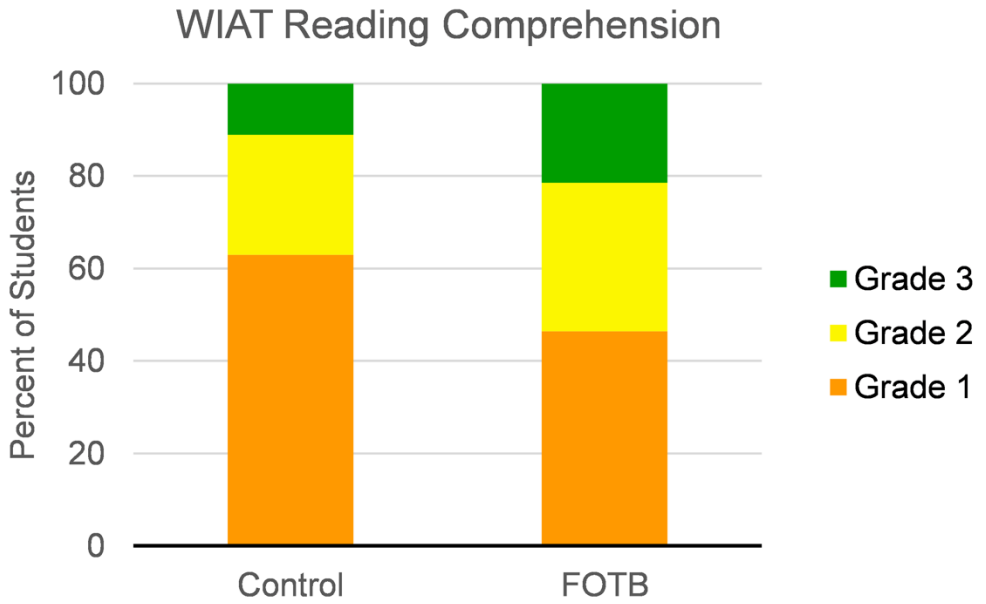
Oral Expression





Reading Comprehension





Results Summary

Measures Reported Today

Measure	*p*	*g*
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**

Additional 12 Measures

Measure	*p*	*g*
WIAT Sentence Repetition	.5565	0.1
Peabody Picture Vocabulary Test	.5482	−0.1
Expressive Vocabulary	.4658	0.1
CUBED Phonological Awareness	.2208	0.3
CUBED Word ID	**.0326**	**0.6**
CUBED Decoding	**.0006**	**0.9**
CUBED Narrative Lang. Reading WPM	**.0006**	**0.9**
CUBED NL Reading Story Qs	**.0310**	**0.6**
CUBED NL Listening Story Qs	**.0310**	**0.7**
CTOPP Elision	**.0018**	**0.8**
CTOPP Sound Matching	**.0136**	**0.9**
CTOPP Phoneme Isolation	.2313	0.4

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

Case Studies

First Name (pseud.)	IQ	Initial Age	Pre PPVT AE	Primary Disability	Hrs of Instruction	FOTB Starting & Ending Levels	Pre FOTB Words	Post FOTB Words	Pre WI GE	Post WI GE	Pre RC GE	Post RC GE	Post ORF GE
Aiden	50	5.83	3.17	DD	46	1/2	2	7	0.7	1	1.3	1.2	Low
Ava	60	6.92	4	DD	42	1/14	19	296	1.4	2.5	1.3	2.2	4.6
Ben	63	9.08	5.33	DD	65	1/14	3	265	0.9	3	1.4	2.2	4
Caleb	64	6.33	4.42	AU	38	5/14	100	294	1.5	3.4	1.5	1.8	2.9
Carter	67	6.58	3.83	DD	69	1/14	13	295	1.3	2.3	1.3	2.2	2.4
Emma	67	7.42	4.83	DD	63	1/13	11	241	1.3	1.9	1.3	1.7	Low
Isaac	70	10.92	6.5	AU	49	1/5	2	5	Low	0.1	1.7	N/A	N/A
Madelyn	70	6.83	3.42	DD	61	1/11	1	198	0.6	2.4	1.2	1.8	2.5
Michael	77	7.92	4.5	ID	46	1/7A	1	79	0.6	1.5	1.3	1.6	Low
Olivia	80	5.67	4.08	DD	49	1/8A	2	120	0.6	1.5	1.3	1.6	Low

First Name (pseud.)	IQ	Initial Age	Pre PPVT AE	Primary Disability	Hrs of Instruction	FOTB Starting & Ending Levels	Pre FOTB Words	Post FOTB Words	Pre WI GE	Post WI GE	Pre RC GE	Post RC GE	Post ORF GE
Aiden	50	5.83	3.17	DD	46	1/2	2	7	0.7	1	1.3	1.2	Low
Ava	**60**	**6.92**	**4**	**DD**	**42**	**1/14**	**19**	**296**	**1.4**	**2.5**	**1.3**	**2.2**	**4.6**
Benjamin	**63**	**9.08**	**5.33**	**DD**	**65**	**1/14**	**3**	**265**	**0.9**	**3**	**1.4**	**2.2**	**4**
Caleb	64	6.33	4.42	AU	38	5/14	100	294	1.5	3.4	1.5	1.8	2.9
Carter	67	6.58	3.83	DD	69	1/14	13	295	1.3	2.3	1.3	2.2	2.4
Emma	67	7.42	4.83	DD	63	1/13	11	241	1.3	1.9	1.3	1.7	Low
Isaac	70	10.92	6.5	AU	49	1/5	2	5	Low	0.1	1.7	N/A	N/A
Madelyn	70	6.83	3.42	DD	61	1/11	1	198	0.6	2.4	1.2	1.8	2.5
Michael	77	7.92	4.5	ID	46	1/7A	1	79	0.6	1.5	1.3	1.6	Low
Olivia	80	5.67	4.08	DD	49	1/8A	2	120	0.6	1.5	1.3	1.6	Low

First Name (pseud.)	IQ	Initial Age	Pre PPVT AE	Primary Disability	Hrs of Instruction	FOTB Starting & Ending Levels	Pre FOTB Words	Post FOTB Words	Pre WI GE	Post WI GE	Pre RC GE	Post RC GE	Post ORF GE
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Benjamin	63	9.08	5.33	DD	65	1/14	3	265	0.9	3	1.4	2.2	4
Caleb	**64**	**6.33**	**4.42**	**AU**	**38**	**5/14**	**100**	**294**	**1.5**	**3.4**	**1.5**	**1.8**	**2.9**
Carter	67	6.58	3.83	DD	69	1/14	13	295	1.3	2.3	1.3	2.2	2.4
Emma	67	7.42	4.83	DD	63	1/13	11	241	1.3	1.9	1.3	1.7	Low
Isaac	70	10.92	6.5	AU	49	1/5	2	5	Low	0.1	1.7	N/A	N/A
Madelyn	**70**	**6.83**	**3.42**	**DD**	**61**	**1/11**	**1**	**198**	**0.6**	**2.4**	**1.2**	**1.8**	**2.5**
Michael	77	7.92	4.5	ID	46	1/7A	1	79	0.6	1.5	1.3	1.6	Low
Olivia	80	5.67	4.08	DD	49	1/8A	2	120	0.6	1.5	1.3	1.6	Low

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Aiden	**50**	**5.83**	**3.17**	**DD**	**46**	**1/2**	**2**	**7**	**0.7**	**1**	**1.3**	**1.2**	**Low**
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Madelyn	70	6.83	3.42	DD	61	1/11	1	198	0.6	2.4	1.2	1.8	2.5
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Discussion

Primary Research Questions

Do students with intensive needs, including students with intellectual and developmental disabilities (IDD), who participate in FOTB demonstrate greater outcomes compared to students who participate in BAU reading instruction?

- Reading
- Language

Results Summary

Measures Reported Today

Measure	*p*	*g*
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**

Additional 12 Measures

Measure	*p*	*g*
WIAT Sentence Repetition	.5565	0.1
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CUBED NL Reading Story Qs	**.0310**	**0.6**
CUBED NL Listening Story Qs	**.0310**	**0.7**
CTOPP Elision	**.0018**	**0.8**
CTOPP Sound Matching	**.0136**	**0.9**
CTOPP Phoneme Isolation	.2313	0.4

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

Limitations and Directions for Future Research

- A limitation is that our interventionists provided the intervention, rather than teachers.
- We have more data to analyze (other measures, observations of the BAU, formal evaluation of fidelity, etc.).
- These results should be considered preliminary as we have another cohort.
- Given the limited language effects on WIAT, we will explore with additional analyses of other measures.
- In future, we will continue to refine the intervention, including bolstering or emphasizing the language instructional components.

Additional Future Directions to Explore

- Do individual student differences moderate improvements in students' reading outcomes? (i.e., IQ, language)
- Do individual family differences moderate improvements in students' reading or language outcomes? (i.e., home literacy environment, parent education, SES)
- Are differences on reading or language outcomes identified between conditions at the end-of-treatment maintained one or two years later?

Questions

For More Information on Friends on the Block

Overview & Demonstration Videos

FREE Materials

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Thank you!

Takeaway: FOTB is effective in boosting the early literacy skills of children with intensive needs, especially IDD.