

Teacher selected versus BEA selected early reading interventions

Dana Wagner, PhD

Aaron Deris, PhD

Melissa Coolong-Chaffin, PhD, NCSP

Background

- Teacher judgments about students' academic skills are important for instructional and service allocation decisions (Salvia, Ysseldyke & Bolt, 2011)
- Teacher judgments about reading skills may not be accurate, especially for low performing readers (Begeny, Eckert, Montarello, & Storie, 2011; Feinberg & Shapiro, 2009; Graney, 2009)
- More information is needed regarding how teachers make decisions about interventions for struggling readers

One method of intervention selection: Brief Experimental Analysis (BEA)

- Single case design methodology
- Brief implementation of two or more interventions in order to find the best fit for an individual
- Research validated practice

BEA general procedure

- Establish baseline
- Implement intervention using that probe
- Administer probe again after the intervention
- Look at change relative to baseline
- Replication
- Extended analysis

BEA and Teacher Judgment Study

- Compared teachers' judgments about middle school students' reading intervention needs to BEA results
- Teacher judgments did not align with BEA results
- Teachers justified decisions with preferences, philosophy, current practice, and generally effective practices

Current study

- Compared teachers' judgments about K-2 students' reading intervention needs to BEA results
- Examined teachers' ideas about intervention selection and their evaluation of intervention effects

Research Questions

1. How do teachers select strategies and interventions to remediate early reading skills?
2. To what degree are teachers' decisions supported by empirical data?
3. How do teachers evaluate the effects of early reading interventions?

Method

Big ideas. Real-world thinking.

Teacher Participants

- Brandy
 - Female, 34 years old, special education teacher, SLD and EBD licenses, Masters + additional hours, 8 years of teaching experience, 25 graduate credits in reading related coursework
- Jessica
 - Female, 37 years old, reading teacher, elementary education and reading licenses, 14 years of teaching experience, 19 graduate credits in reading related coursework
- Beth
 - Female, 44 years old, intervention teacher, elementary education license, 23 years of teaching experience, 20 graduate credits in reading related coursework

Student Participants

- **Jacob**
 - Male, Caucasian, 7 years old, 2nd grade, ADHD, special education services
- **Julio**
 - Male, Latino, 5 years old, Kindergarten, reading intervention, ELL services, no special education services
- **Natasha**
 - Female, Caucasian, 6 years old, repeating Kindergarten, reading intervention, no special education services

Measures

- Pre and post intervention semi-structured interview
- Brief Experimental Analysis
 - Unique measures created for each participant and each condition
 - Decodable Word Fluency (DWF)
 - Letter Sound Fluency (LSF)
 - Total sounds read (LSF + DWF)
- Extended analysis
 - Unique intervention materials and measures created for each student
 - Daily and weekly DWF

BEA

- Four interventions tested
- I do, we do, you do and standard error correction procedure used across all conditions
 - Letter boxes
 - Write each letter of the word while saying the sound, blend the sounds, read the whole word
 - Onset-rime
 - Underline the rime, read the rime, read the first sound, rime, and whole word
 - Sound it out
 - Read each letter sound, blend the sounds, read the whole word
 - Whole word
 - Read the whole word

BEA

- Interventions implemented in random order one time
- Top two compared again to identify most promising (ABAB)
- Total sounds read across DWF and LSF used as dependent measure

Pre Intervention Interview

1. How do teachers select strategies and interventions to remediate early reading skills?
 - What are the student's main reading challenges?
 - What might you do to address these challenges?
 - What kinds of information do you use to make decisions about instruction for this student?
 - Description of each intervention
 - Which do you think would be most effective for this student? Least effective? Why?

Teacher Intervention Training

- Teacher selected and BEA-identified interventions
- Scripts provided
- Demonstration
- Feedback given following initial implementation sessions until integrity was 100%
- Follow-up observations at weeks two and four

Extended Analysis

- Teachers implemented BEA-identified and teacher-selected intervention for 6 weeks
- Different set of 5 words targeted within each intervention each week
 - Each intervention implemented 2 times per week for 10 minutes on consecutive days
 - Intervention order varied across weeks

Post Intervention Interview

2. To what degree are teachers' decisions supported by empirical data?
3. How do teachers evaluate the effects of early reading interventions?
 - Did one intervention seem more effective than the other? Which one? Why? How did you know it was more effective?
 - If you were to continue with one, which one? Why?
 - Researcher shared student data
 - After looking at the data, if you were to continue the intervention, which would you use and why?

Results

Big ideas. Real-world thinking.

For each participant

- Pre intervention interview highlights
- BEA Results
- Extended analysis results
- Post intervention interview highlights

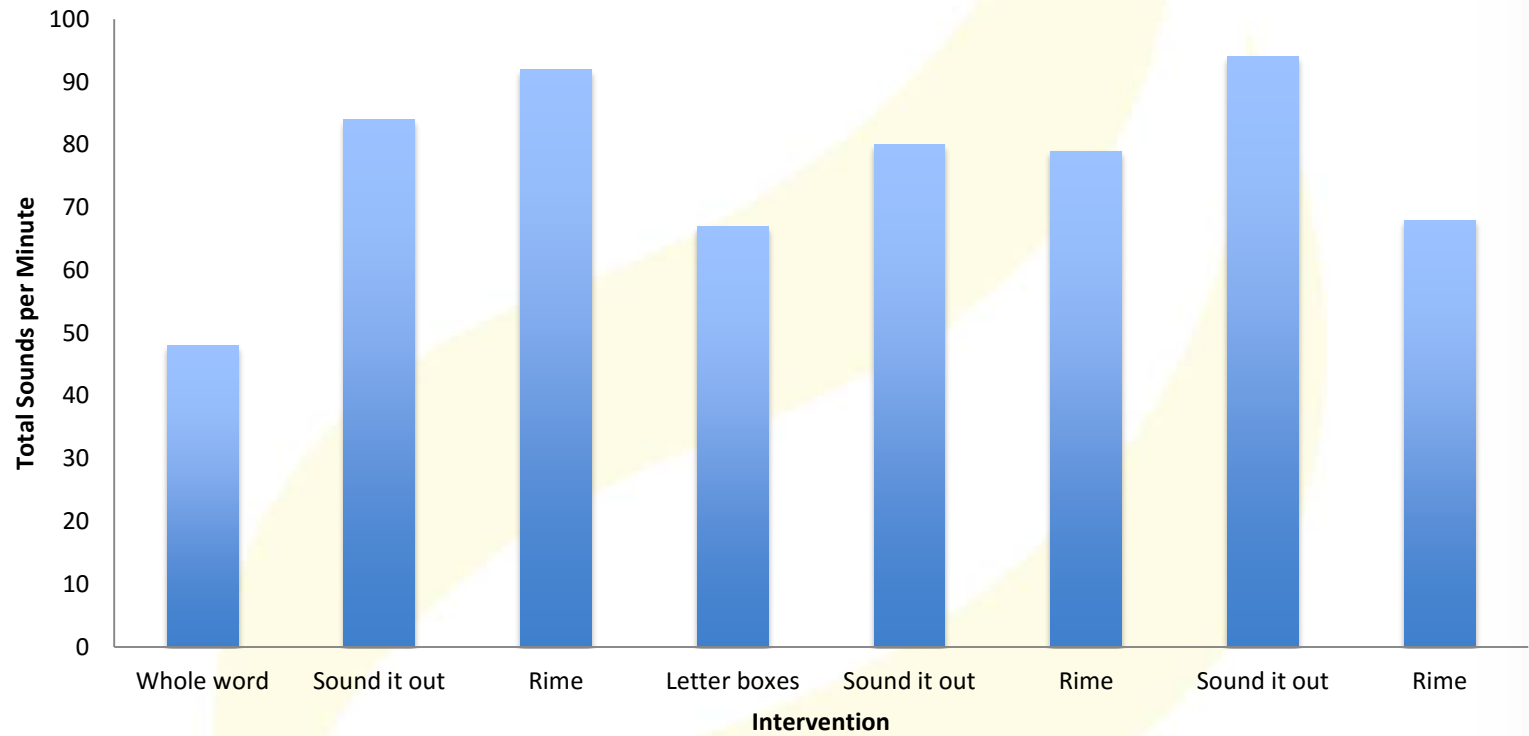
Jacob Pre Interview

- Challenges: working memory and ability to remember all the sounds, his ability to blend the sounds into words, and rhyming
- Instructional decisions: uses progress monitoring data from goals/objectives on his IEP and informal reading assessments to determine instruction, differentiated instruction in the general education classroom and used a multisensory reading intervention (e.g., project read) with little success

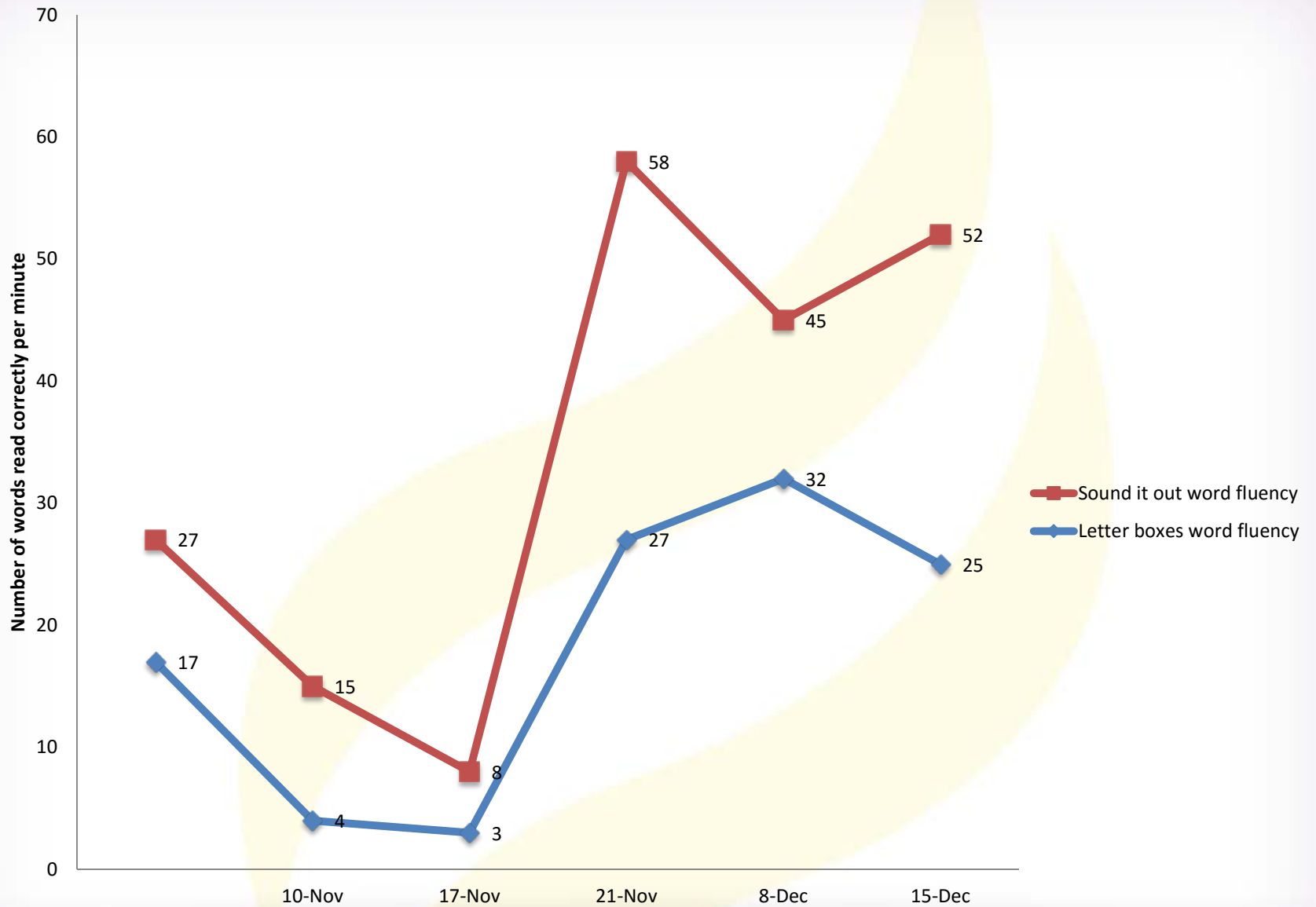
Jacob Pre Interview

- Most effective- Letter Boxes... Like that it includes writing. Will make him focus on one letter at a time.
- Least effective- Whole Word because of his ADHD he's impulsive...he'll look at the first letter and guess.

Jacob's BEA



Jacob's Weekly Intervention Word Fluency



Jacob Post Interview

- Before seeing the graphs...
- Believed that he made the most growth pre to post test with Sound it Out because there were too many components to Letter Boxes, which inhibited his attention, but liked Letter Boxes because he could “connect the visual to writing”.

Jacob Post Interview

- After seeing the graphs...
- “He made gains in both...Most growth with SIO...without the boxes really focused on words...LB seemed to result in best retention”. (hypothesizes low performance due to medication inconsistencies).
- Would use LB because it includes motor piece and resulted in best retention, which was a misinterpretation of the data.

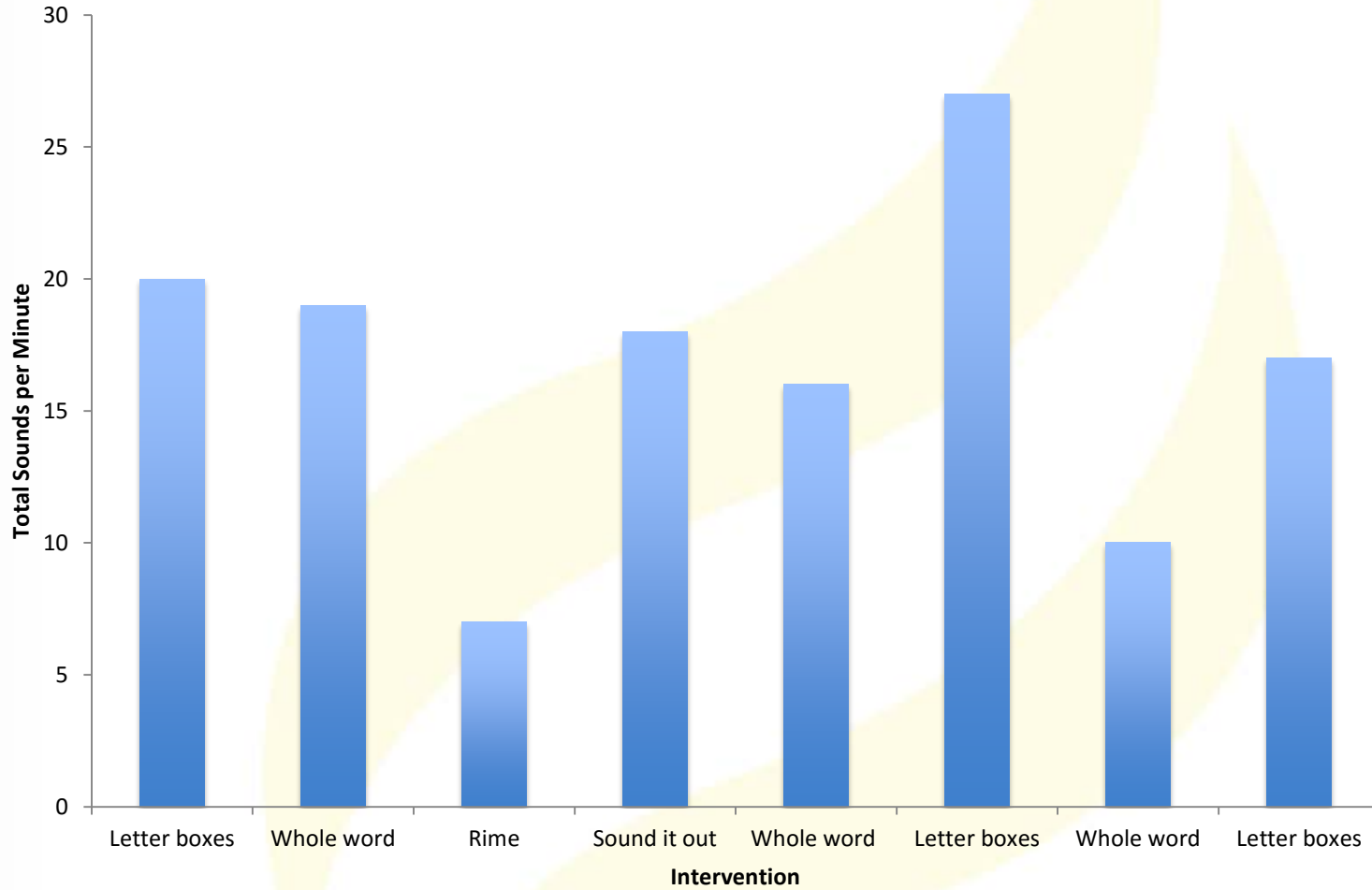
Julio Pre Interview

- Challenges: Retention of letter sounds and letter identification. Brother has processing and retention issues, and is concerned that Julio may have similar challenges.
- Instructional decisions: various forms of assessment data to make intervention decisions, including the district's early kindergarten assessment, diagnostic assessments (e.g., Orton Gillingham), and curriculum based measures (i.e., DIBELS). In the past for interventions, she has used multisensory reading interventions (e.g., Orton Gillingham), and teaching letter sound correspondence and high frequency words.

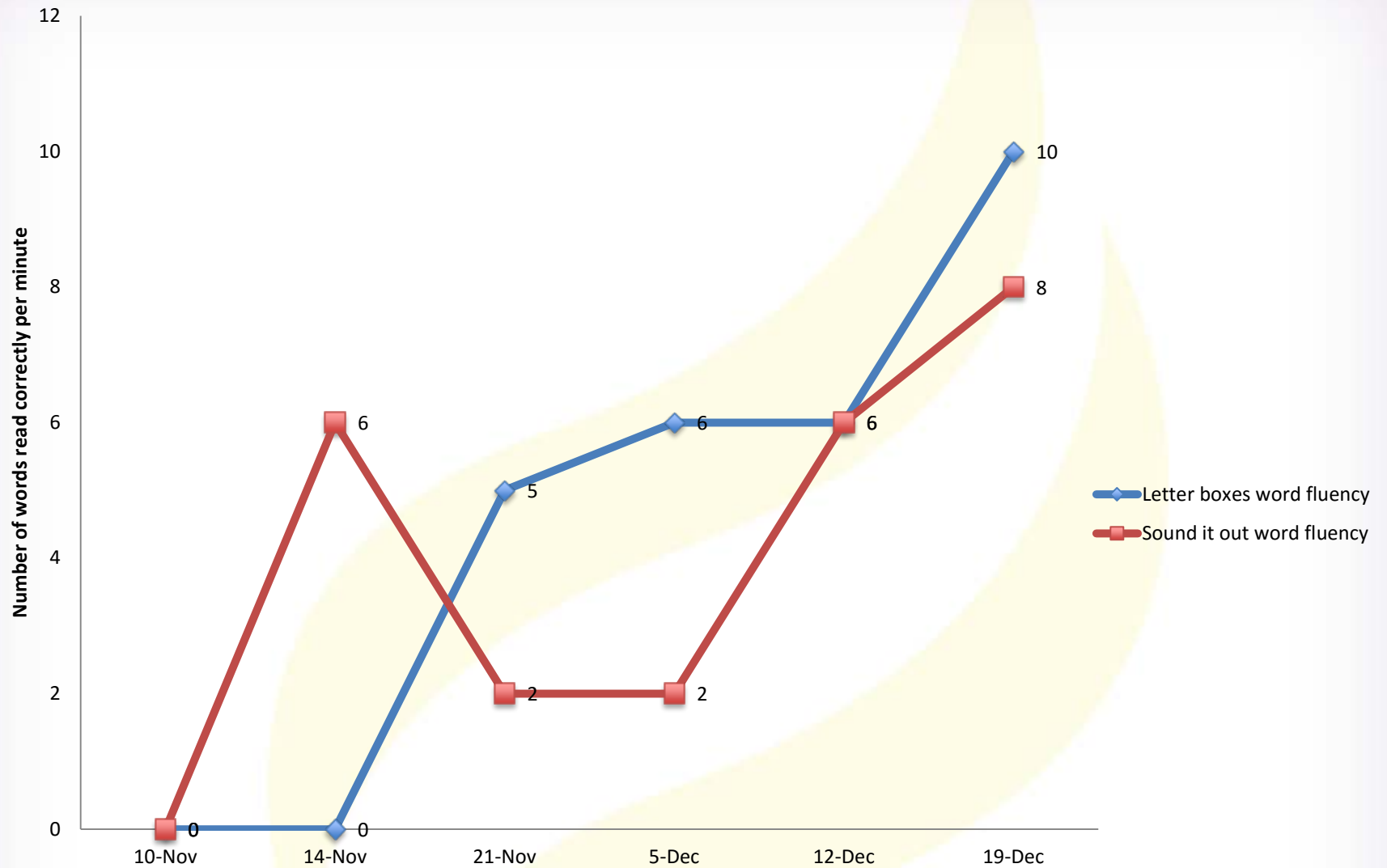
Julio Pre Interview

- Predictions
 - Most effective: “Sound it Out. It matches our goals for him...it’s going to build on the progression of what we’re currently working on...will match with what he’s already mildly been exposed to but based on his level...”
 - Least effective: “Onset rime...it would be way too difficult for him right now”.

Julio's BEA



Julio's Weekly Intervention Word Fluency



Julio Post Interview

- Before seeing the graphs...
- “...Great growth with both. Routines were helpful as was focusing on one vowel at a time”.
- Elements of focusing on slowing down to read individual sounds and then reading the whole word in both interventions contributed to their effectiveness
- “I would continue with Sound it Out because it matches other interventions he’s getting in the classroom even though I also liked Letter Boxes.”

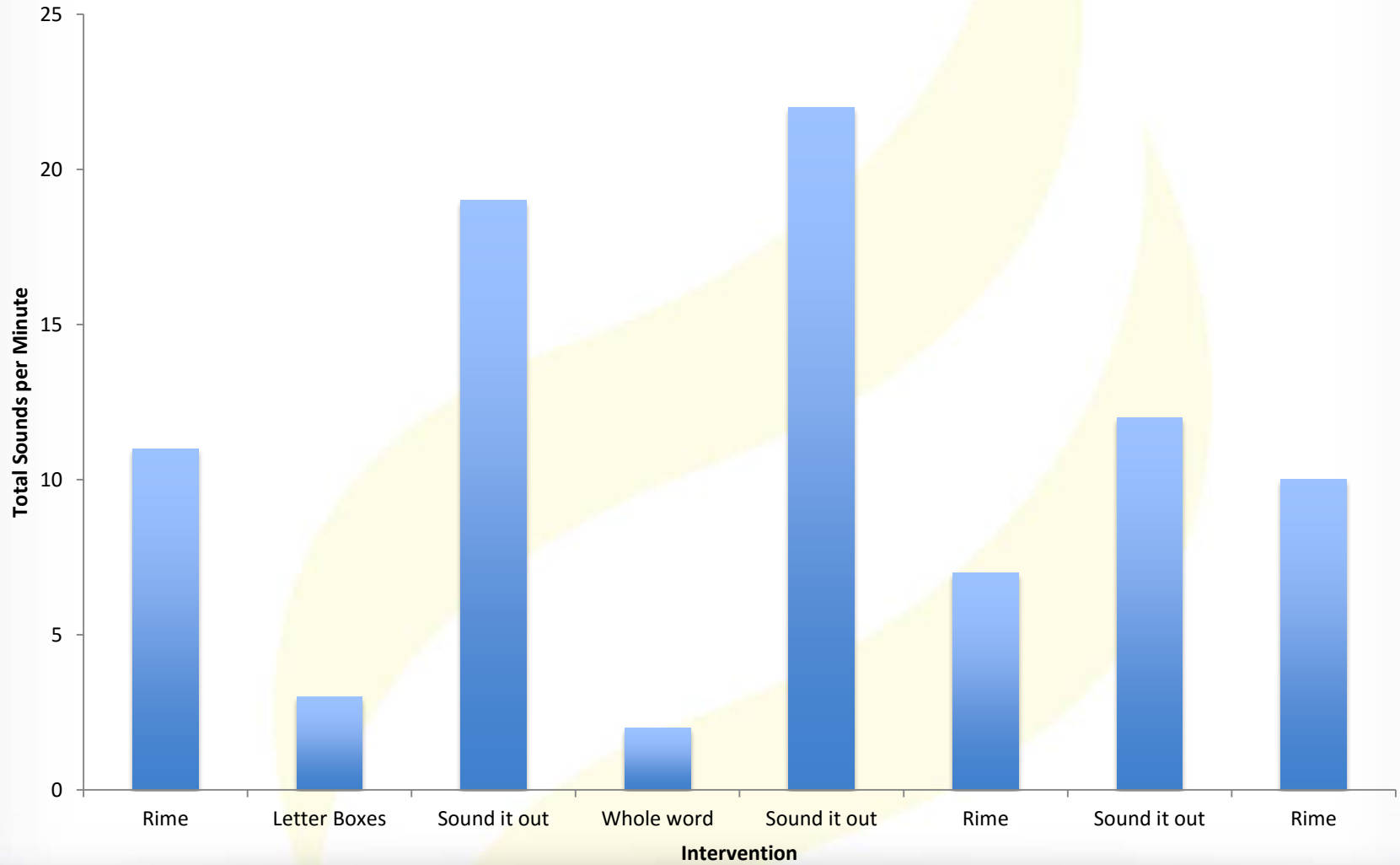
Julio Post Interview

- After seeing the graphs:
- “I think there’s a lot to be said about actually writing, like physically writing and just the multiple modalities of what that does within the brain.”
- Described how the letter boxes intervention fit with what she was doing with her PLC group.
- “Letter Boxes seems to be a bit better...I would continue with Letter Boxes because it seemed to trump Sound it Out”.

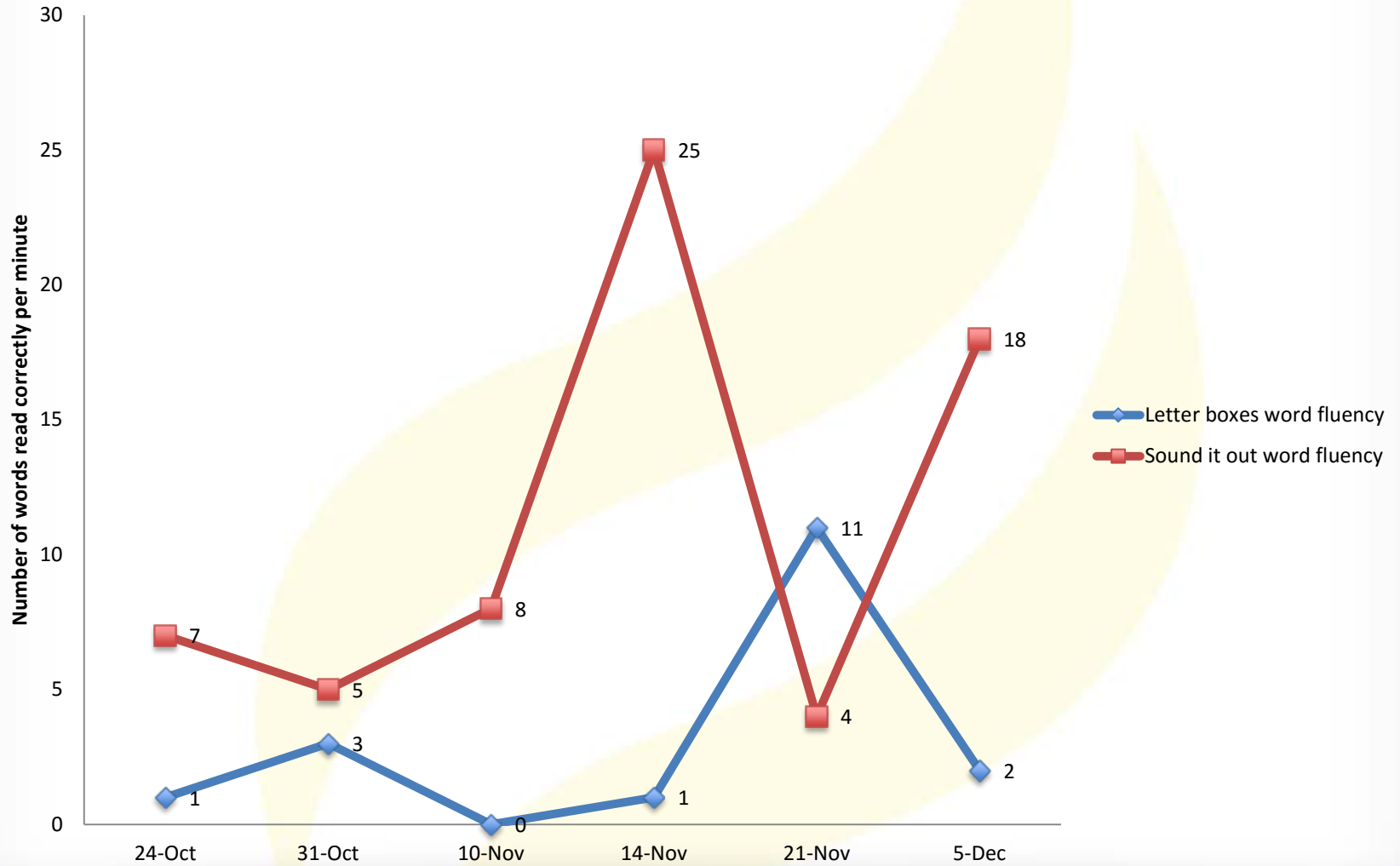
Natasha- pre interview

- Challenges: “She knows nothing... Not sure of previous experiences or home life.. calls letters numbers, says same two sounds given any letter.”
- Most effective- letter boxes- “tactile”
- Least effective- whole word “she doesn’t know her sounds and I’m not sure she’s a whole word reader.”

Natasha's BEA



Natasha's Weekly Intervention Word Fluency



Natasha Post Interview

- Before seeing the graphs...
- “I loved letter boxes because she said, wrote, and read the sounds and words... Sound it out was good, but letter boxes was better. I don’t know if it was more effective because I haven’t seen the data...My philosophy is that they have to see it, read it, write it...all modalities...”
- Sound it out would be easier since I wouldn’t have to do the prep...
- I’d use both depending on the child’s needs. For tactile kids, I’d use letter boxes.

Natasha Post Interview

- After seeing the graphs...
- “Sound it out is better for her. Wow...Maybe because it was better because it was easier for her to transfer without the boxes...in Letter Boxes she’s looking for boxes, not words...with Sound it Out her attending improved...”
- “I’d use Sound it Out...It’s easier and it worked better.”

	“Most effective”	“Least effective”	BEA- Indicated	Extended Analysis Most Effective	Teacher choice to continue	Why?
Jacob	Letter Boxes-	Whole Word+	Sound it Out	Sound it Out	Letter Boxes	Letter formation, better retention
Julio	Sound it Out-	Whole Word-	Letter Boxes	Letter Boxes	Sound it Out, then Letter Boxes	Worked better
Natasha	Letter Boxes-	Whole Word +	Sound it Out	Sound it Out	Both, then Sound it Out	Easier and worked better

Discussion

- How do teachers select strategies and interventions to remediate early reading skills?
 - Participants reported that they use data and focus on individual student need to make instructional decisions.
 - Described the use of various assessments
 - Provided rationale based on individual student need when selecting an intervention for the study
 - Why did none of the decisions align with BEA or extended analysis results?

Discussion

- To what degree are teachers' decisions supported by empirical data?
 - BEA showed idiosyncratic results for participants
 - No teacher selected the same intervention that was identified in the BEA
 - The BEA-identified intervention was more effective than the teacher-identified intervention over time

Discussion

- How do teachers evaluate the effects of early reading interventions?
 - Before seeing data
 - Although uncertain at first, Beth made a decision that aligned with the data.
 - Neither Brandy's nor Jessica's decision aligned with the data.
 - After seeing the data
 - Beth's decision was confirmed and she recognized it.
 - Jessica's decision was disconfirmed, and she readily changed her decision.
 - Brandy's decision was disconfirmed, and she continued to endorse previously preferred intervention. She misinterpreted data to align with this preference.

Next steps

- Further exploration of how and why teachers make decisions about interventions for individual students
- Examination of the effects of teacher supports for making data based decisions

Thank you!

Big ideas. Real-world thinking.