The Name Game

- The new “umbrella term”
  - Speech Sound Disorders
    - Articulation
    - Phonology
    - Phonological processes
    - Phonological processing

Prevalence of Speech Sound Disorders

- How many children have speech sound disorders?
  - 10-15% of preschoolers
  - ~6% of school-age children (grades 1-12)

  ASHA, 2000 in Williams, 2003

Why is it important to intervene early?

- EBP: 50-70% of children with SSDs have academic difficulties (Williams, 2003)
  - Stackhouse (1982) - difficulty with grapheme-phoneme connections
  - Dodd et al (1995) - delayed phonological awareness skills

- EBP: High correlation between SSDs and poor reading/writing; worse if speech disorder not resolved by 5:6 (Bishop & Adams, 1990)
Why is it important to intervene early?

- 47% of preschoolers with isolated articulation difficulties and 63% of preschoolers with artic + language problems scored >1sd below the mean on reading test at end of 1st grade

Delay vs Disorder in Preschoolers

**Delay**
- Larger inventories:
  - 13-15 initial Cs
  - 8-11 final Cs
- Greater diversity
  - 9.2 different syllable structures
- Higher PCC (56%)
- Lower sound variability (1.2)
- Typical error patterns
- Steady progress

**Disorder**
- Smaller inventories:
  - 6-9 initial Cs
  - 1-5 final Cs
- Limited diversity
  - 7 different syllable structures
- Lower PCC (34%)
- Greater sound variability (1.74)
- Atypical patterns
- Little to no change

Diagnosis

- Low—characteristics of phon disorder:
  - Restricted range and frequency of segments
  - Extremely limited fricatives, glides, and liquids
  - Absent clusters
  - Pervasive use of glottal stop substitution
**Diagnosis**
- Low—characteristics of phon disorder:
  - Vowels usually OK, but tendency to neutralize
  - Syllable structure tends toward CV or CVCV
  - Inclusion of sounds outside the language
  - HX of static system, plateau at early stage

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**John**

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PCC = 17/25 (72%)  PWM = 6/9 (66%)

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**Michelle**

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PCC = 2/25 (8%)  PWM = 1/9 (11.1%)
Choosing Treatment Targets

Target Selection Factors

Traditional approach:
- Select targets that are:
  - stimulable
  - early developing
  - easier to produce
  - frequently occurring
  - most likely to interfere with intelligibility

Target Selection Factors

Principle of nontraditional approach:
- teaching more complex targets results in greater overall change in the child’s phonological system

Note:
- traditional approach changes sounds
- nontraditional changes the system
Target Selection Factors

Non-traditional approach:
- Target sounds that:
  - Are non-stimulable
  - Are later-developing
  - Are phonetically more complex
  - Are linguistically marked
    - fricatives harder than stops
    - voiced harder than voiceless
    - affricates harder than fricatives
    - clusters harder than singletons

Systemic Approach:
- Target functional sounds: consider role of sound for individual child
- Target sounds based on distance metric:
  - Select targets that are maximally distinct from the child’s error in terms of place, manner, voice, and linguistic unit.

For a child who needs system-wide change, which phoneme is the best contrast for /j/?
- a. /f/
- b. /n/
- c. /m/
- d. /w/
Target Selection Factors

Lexical Properties:
- Two aspects: Frequency and density
- Frequency = how common the word is in a language
- Neighborhood density = number of phonetically similar words based on one sound substitution, deletion, or addition. (e.g., “feet” is in the neighborhood with “fleet,” “meet,” and “eat”)
- High-density = has 10 or > “neighbors”
- What are neighbors for “ball”?

Williams, Division 1 Newsletter April 2003

Neighborhood for ball

- fall, small, hall, tall, mall, doll, crawl, stall, call, wall, boss, bought, bog, balk, bomb, bop

Target Selection Factors

Lexical Properties:
- Target words with high frequency and/or low density to facilitate generalization
- Good treatment targets based on high frequency and low density (i.e., <10 similar words)
  - drive (105, 9)
  - house (591, 7)
  - three (610, 9)
  - (high frequency =100 or >, low density = <10)

http://slpath.com – word lists
Target Selection Factors

When child has significant phonotactic constraints (e.g., no final C, no clusters, no multisyllabic words, frequent reduplication or assimilation), need to work on the frame before addressing accuracy of segments.

Target Selection Factors

Ingram's 3 major rules in choosing targets:
- Eliminate instability
- Eliminate homonyms
- Establish feature contrasts

Target Selection Factors

Bleile chooses error patterns that are:
- Frequent (50-75%)
- Present (25-49%)
- Does not start therapy with patterns that are:
  - Highly frequent (75-100%)
  - Disappearing (1-24%)
Target Selection Factors

- Lowe considers context, semantic potency, syllable shape, phonetic inventory
- Context—target should be only error in word; require least articulatory adjustment
- Potency—functional words for ADL
- Syllable shape—introduce new sound in familiar syllable shape
- Phonetic inventory—use to select sounds for non-target part of stimulus words

My Advice

1. Focus on error patterns that have a major impact on intelligibility.
2. Choose target phonemes/structures that have an impact on error patterns and/or expand the system.
3. Consider personal/social factors (e.g., motivation, confidence, IQ).
4. Choose a goal attack strategy (vertical, horizontal, cyclical) based on error patterns.

(Adapted from Tyler in Kamhi & Pollock, 2005)

John

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### Goal Attack Strategies

### Goal Attack Strategies/Structures

- **Vertical (deep):** address one goal to specified criterion before proceeding to second goal
- **Horizontal (broad):** address multiple goals in each session
- **Cyclical:** several goals are cycled at regular intervals
Deep or Broad?

- Training Deep
  - RemEDIATE just 1 or 2 sounds
  - Phonetic approach, using traditional artic strategies
  - Lots of drill

- Training Broad
  - Target a few exemplars for each pattern being addressed
  - Use cognitive-linguistic approach
  - Limited drill

Why does it matter?

- Training deep with a child whose problem is phonological will take too long to remEDIATE all the errors.
- Training broad with a child whose problem is primarily motoric will not allow for necessary intensive drill.

Sample Goals

- Elly will increase the % of intelligible words in conversational speech from 60% to 75%, based on a spontaneous speech sample of at least 50 unduplicated words.
- Elly will increase her Percentage of Consonants Correct (or PWM) from baseline of 52% to 70%, based on a spontaneous speech sample of at least 50 unduplicated words.
Sample Objectives
- Child will produce target CVC and VC words with a final consonant in x% of trials, regardless of consonant accuracy (imitated, elicited, spontaneous).
- Child will produce 8 out of 10 target two-syllable words with two syllables, regardless of consonant or vowel accuracy.
- Child will produce target two-consonant clusters with two consonants in 18 out of 20 words, regardless of consonant accuracy.

Sample Objectives
- Child will produce 8 of 10 two-consonant words (CVC or CVCV) with consonants that differ in place and/or manner, regardless of consonant accuracy.
- Child will contrastively produce /s/ and /g/ in four out of five meaningful CV, VC, or CVC words, given a clinician model.

Treatment Approaches
**Treatment of Speech Sound Disorders**

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**Traditional Motor Learning Hierarchy**

- Conversation
- Reading
- Sentences
- Phrases
- Single Words
- Syllables
- Isolation

*New motor learning approach—once sound established at syllable level, mix it up!*

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**Motor Learning Approach**

1. **Pre-practice/placement**
   - Teach target sound in isolation and syllables until 80% accurate

2. **Practice** Randomized variable sequence of tasks
   - Student practices at different levels during each session
   - Context is not "fixed" at a particular level as in traditional treatment

3. **Generalization**

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**Motor Learning Techniques**

- Imitation/modeling
- Facilitating contexts
- Phonetic placement
- Successive approximation/shaping
- Slow motion speech
- Shadowing (echo speech)
- Unison speech
- Flooding

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Practice Conditions

- Random vs. Blocked Trials
  - Blocked: many repetitions of same target—better performance within a session, but poorer generalization and retention
  - Random: targets presented in random order—leads to better generalization
  - SO, use start with blocked practice and move to random trials

Getting 200+ Responses!

- Use tally counters to challenge students for multiple productions (www.tallycounterstore.com)
- Have students subvocalize (“voices turned off”) during other students’ turns to increase number of practice opportunities (may have to monitor initially)
- Add up group total and have contests across groups to see who produces the most

KR and KP

- Knowledge of results
  - Was the production right or wrong?

- Knowledge of performance
  - What should the child do to improve? (e.g., “open bigger”, “tighten up your tongue”)
Achieving Generalization

- Changing levels (words, sentences, conversation)
- Changing the order of target words
- Changing number of responses
- Changing stress, intonation, rate
- Talking while doing other things!

Contrast Therapy

- create new phonemic distinctions in language by teaching feature contrasts (e.g., place, manner, voice)
- “Make these two words sound different.”
- Tyler (2005) says child not ready for minimal pairs until he has ~ 40% accuracy for target in words produced after a model

3 Versions of Minimal Pairs

- Target-substitute
  - Target and error sound
- Target-known sound
  - Target and another sound already in child’s repertoire
- Target-target (aka “empty set” approach)
  - Two new sounds introduced simultaneously

~ Gierut, LSHSS, Oct. 2001
3 Versions of Minimal Pairs

- All 3 result in generalization, but pairing 2 new sounds leads to greater change in the phonological system
- Supportive evidence from studies of syntax, semantics, even motor skill learning—practice of more difficult skills results in greater learning

— Gierut, LSHSS, Oct. 2001

Maximal Opposition Contrast Tx

- Uses minimal pairs, but target sounds are as different as possible
  - Target phoneme /s/
    - Minimal opposition = sew, toe
    - Maximal opposition = sun, gun
- Sound pairs are more salient, more learnable
- Best candidates = moderate to severe, missing 6 or > sounds from inventory

Chart of Feature Differences

<table>
<thead>
<tr>
<th>Sound</th>
<th>One Feature</th>
<th>Two Features</th>
<th>Three Features</th>
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<tr>
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<td>n, t, b, w</td>
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<tr>
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Maximal Opposition Contrast Tx

- Example:
  Child has /w, j/, nasals, /p, b, t, d, h, f, v/
  Does not have /r, l, k, s, z, s, z, tʃ, θ, ɹ /
- What phonemes would you target?

Child has /w, j/, nasals, /p, b, t, d, h, f, v/
Does not have /r, l, k, s, z, s, z, tʃ, θ, ɹ /
- What would each choice teach?
  - /r/ or /l/ - liquid
  - /k/ or /g/ - velar
  - /s, z, s, z, tʃ, θ/ - strident

Multiple Oppositions Tx

- Addresses homonymy by using larger treatment sets (e.g., minimal trios instead of pairs)
- Used for children with extensive phoneme collapse (usually severe disorder)
Multiple Oppositions Tx

- **Example:** child collapses all voiceless nonlabial obstruents and clusters to /t/ in word-initial
  So, *Kip*, *chip*, *ship*, *trip*, *skip*, *clip*, *sip* are all produced as *tip*.
- Tx might target /k/, /s/, /tʃ/, /tr/
- Example targets: too, Sue, chew, true

**Minimal Trios**

- pill sill spill
- pin sin spin
- lamb Sam slam
- core sore score
- clap class clasp
- lap sap slap

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Peter Flipsen
Phonotactic Therapy - FCD

Most Cs are first mastered in onset; but velars, fricatives, and voiceless stops are acquired first in coda.
- Normally produce codas following short vowels rather than long vowels.
- So what are some ideal target words for teaching final consonants?
  - Kick, hat, house, half, bus, pot

(Velleman, Seminars in Speech and Language, 2002)

Phonotactic Therapy - Syllableness

- Treatment Ideas:
  - Target syllable repetition in: movement activities (e.g., up, up, up) daily routines (e.g., bowl, bowl, bowl) reading counting books (e.g., repeat name of object repeatedly instead of counting occurrences “ball, ball, ball”)
  - Target words with reduplicated structure (e.g., boo boo, mama, pee pee).

Phonotactic Therapy - Stress

- Weak syllables are most likely to be omitted in the word initial position (i.e., iambic stress pattern: giRAFFE), but not when in the final word position (e.g., trochaic: lion).
  - Target longer words with a trochaic (S-w) pattern.
  - Target iambic (w-S) words in phrases with a stressed word directly preceding the target word (e.g., BIG giRAFFE).
Trochaic Sequences

- Wonder Woman
- teeter totter
- itty bitty
- alligator
- magic pudding
- humpty dumpty
- make it better
- see you later
- get the paper
- Cinderella
- fasten seatbelts

Cycles Approach

- No predetermined level of mastery; therapy intended to stimulate emergence of a specific sound or pattern, not mastery
- Several sounds are targeted within one cycle (at least 2 exemplars for each pattern)
- Target population: highly unintelligible children, age 3 or older
- Emphasis on listening (“auditory bombardment”)

Cycles Approach

- A cycle = number of weeks needed to target every pattern for about 60 minutes, which usually ranges from 5-15 weeks
- Typical program requires 3 to 5 cycles, or about 30-40 hours of therapy
- Uses real words for objects and actions, not nonsense words; preferably monosyllabic with facilitating contexts
Cycles Approach

Typical Cycle 1: syllableness, word-initial singleton consonants (labials), word-final voiceless stops, anterior/posterior contrasts, /s/ clusters, liquids

Recycle primary patterns until:
- Velars/alveolars are used contrastively
- /s/ clusters are emerging
- Liquids are emerging
- Initial and final consonants are used

Cycles Approach

Session sequence for child with severe disorder – Cycle 1
- 1. syllableness – 2-syllable compound words
- 2. syllableness -2/3 syllable compound words
- 3. prevocalic singletons - /m/
- 4. prevocalic singletons - /b/
- 5. prevocalic singletons - /w/
- 6. postvocalic singletons - /p/
- 7. postvocalic singletons /k/

Cycles Approach

- 8. back consonants - /h/
- 9. back consonants - /k/
- 10. consonant clusters – initial /sm/
- 11. consonant clusters – initial /sn/
- 12. consonant clusters – final /ts/
- 13. consonant clusters – final /ps/
- 14. liquids – initial /l/
- 15. liquids - /r/
Treatment of Speech Sound Disorders

Cycles Approach

- Possible secondary target patterns:
  - Voicing contrasts in prevocalic
  - Palatal glide /j/
  - Palatal sibilant /y/
  - /r/
  - Singleton stridents /l/ and /s/
- Now begin using minimal pairs
- Recycle until target emerges (<40% error)

Hodson, AJSLP, August 2002

Cycles Approach

- Potential advanced target patterns
  - For upper-elementary grade level children with intelligibility problems
    - Complex consonant sequences (e.g., extra, square, astronaut)
    - Combinations of nasals (e.g., unanimous)
    - Multisyllability

Typical Cycles Session

- Review last session’s words
- Listen to 15-20 words with target pattern, using amplification
- Produce 5-6 carefully selected words, using cues/prompts as needed; goal is near 100% accuracy so they don’t practice error
- Metaphonological activity (e.g., rhyming)
- Probe for next session’s target
- Repeat listening activity
- Home practice (2 minutes per day)
Language-Based Approach

- Basic assumptions:
  - 1. SLI and speech sound disorder co-occur in 35-60% of cases.
  - 2. Intervention focusing on clarifying communication can affect phonology and other aspects of language simultaneously.
  - 3. Whole-to-part learning and top-down processing: changes in higher linguistic levels may cause changes in lower levels (i.e., phonology).

  Tyler, Seminars in Speech & Language, 2002

Language-Based Approach: Example Strategies

- 1. Scaffolding narratives – enhances whole-to-part learning through storytelling at increasingly higher levels of discourse structure and semantic complexity.

- 2. Focused stimulation – provides child with multiple models of target morphosyntactic structures in a natural communicative context.

  Tyler, Seminars in Speech & Language, 2002

- 3. Elicited production procedures – increases opportunities for the production of morphosyntactic targets with clinician support (e.g., cloze tasks, preparatory sets, etc.)

- 4. Naturalistic intervention – use of normal speech models while applying facilitative strategies to elicit the increased accuracy of specific sounds/words and the elimination of error patterns.

  Tyler, Seminars in Speech & Language, 2002
**Example targets addressing both phonology and morphosyntax**

- **Therapy goal = CR**
  - Plurality – boat-boat, cup-cups
  - Reg. Past – walk-walked, kiss-kissed

- **Therapy goal = FCD**
  - Plurality – toe-toes, key-keys
  - Possessive – Ray-Ray’s mama-mama’s
  - Reg. Past – show-showed
  - 3rd pers. Singular – I go-he goes

**Morphology Sequence based on Phonemic Complexity**

- Combine early morphology and phonology goals in this order:
  - Early free morphemes (in, on)
  - -ing
  - Irregular forms (mouse-mice, think-thought)
  - Syllabic forms (horses, patted, pushes)
  - Non-syllabic forms where root word ends in V (shoes, Joe’s, goes, tried)
  - Non-syllabic forms where root word ends in C (ducks, walks, bowled)

- EBP: each form of past tense and plural is a different response class; not likely to generalize (Hegde & McConn, 1981)

**Morpho-syntax intervention**

- **Typical session for morphosyntax:**
  - Focused stimulation: craft activity “John TAPES ears on the blue horse.”
  - Elicited production
    - Forced choice: “The man jumps or runs?”
    - Cloze task: “This man jumps and this man ___”
  - Preparatory set: indirect models
    - Tyler et al LSHSS January 2002
Phonology intervention

- Typical session for phonology:
  - Auditory awareness: Three Little Pigs
    - final /f/ words: huff, puff, wolf
  - Target sound identification: /f/ = “fan” sound
  - Conceptual: LONG sound (short and long spaghetti)
  - Production practice: feed final /f/ words to puppet
  - Naturalistic activity: make LOAF with playdough
  - Phonological awareness: odd-one-out (huff, puff, star)

- Tyler et al LSHSS January 2002

Language-Based Approach: Cross-Domain Effects

- Tyler, Lewis, Haskell & Tolbert (2003) recommended using lexical focus for toddlers (new words with old sounds then new words with new sounds) but for preschoolers alternate morphology and phonology weekly or use blocks, beginning with block of intervention focusing on more affected domain
- Tyler et al found that addressing morpho-syntax first resulted in change in phonology, but not vice versa

- Tyler et al LSHSS January 2002

Language-Based Approach: Communication-centered therapy

- Hoffman, Norris, & Monjure (LSHSS, 1990) found that narrative intervention facilitated gains in phonology
- Emphasize “phonetic production in the service of language use”
- Use story-telling and reading activities, and address speech only as it interferes with communication
- Focus is on increasing intelligibility within a natural context

- Ingram & Ingram LSHSS Oct 2001; Norris & Hoffman, 1990

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Core Vocabulary Approach

- Premise: Children with intelligibility problems have limited phonemic repertoires, few complex syllable shapes, and few correctly-produced words.
- Intelligible word production is highly reinforcing for children.
- Begin with sounds in the child’s phonetic inventory, and combine these sounds into a core vocabulary.
- Gradually add phonemes and syllable shapes.

Caroline Bowen’s Brag Book Idea

- “Bryce’s Brag Book”
  - Pictures of words the child can say.
  - Pictures of words the child can approximate.
  - Pictures of sound-effects the child can make (e.g., a car noise).
  - Pictures of sounds that carry meaning that the child can make (e.g., “mmm” for yummy; “sss” for snake).
- Homework activity 5-7”, once or twice a day

Velar Targets for “Going on a Picnic”

- Carrots
- Cake
- Candy
- Cookies
- Koolaid
- Ice cream
- Coke
- Picnic
- Milk
- Bake
- Take
- Like
- Sack
- Back pack
Target: Fricatives
Theme: At the Beach

- **Books**
  - Rainbow Fish
  - Rainbow Fish Lost at Sea
  - Rainbow Fish to the Rescue
  - At the Ocean
  - The Ocean: Alphabet
- **Sand/Water Table**
  - Sand, seashells, shells, salt water, same/different, fish, swim, swim,
- **Craft**
  - Painting seashells, brush
- **Snack**
  - Fish, sand dollar cookies, seaweed slaw

Curriculum-based Intervention

- Mark has received speech therapy since age 3, when his intelligibility was <50%. His speech has improved significantly, but stopping and cluster reduction still occur at levels between 30 and 60%.
- Recently, Mark failed the school hearing screening. Follow-up audiological testing revealed a sloping sensorineural hearing loss in the right ear.

Example IEP Goal

- Mark will increase intelligibility from baseline of 68% to 80% through the use of target phonological patterns as measured by spontaneous speech sample of at least 50 words.
- Reduce postvocalic devoicing, stopping, and cluster reduction.
### 2nd Grade Reading TEKS

**Blend initial letter - sounds with common vowel spelling patterns to read words**

**Curriculum-Friendly Tips:**
- Write the letters on notecards and push together to make the cluster.
- Assign one student /s/ and another student /l/-push the students together until the /s/ and the /l/ are blended.
- As a class or group, create lists of words that start with /s/, words that start with /l/, and words that start with sl.
- Point out that SLap means to hit someone and Sap comes from trees.

### 2nd Grade Reading

#### Examples of books containing blends

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Target Phonemes</th>
<th>Target Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cows Can't Fly</td>
<td>David Migrim</td>
<td>Initial /l/ blends</td>
<td>fly, flying, flew, flopped, fluttered, flapped</td>
</tr>
<tr>
<td>Big Frank's Fire Truck</td>
<td>Leslie McGuire</td>
<td>Initial /l/ blends</td>
<td>Frank, truck, brush, frightened, crew</td>
</tr>
<tr>
<td>Caps, Hats, Socks, and Mittens</td>
<td>Louise Borden</td>
<td>Final /s/ blends</td>
<td>caps, hats, socks, sleds, mugs, cups, cuts, pots, eggs, twigs, picnics, flags, dogs, fast, bugs, cats, frost, dusk, pumpkins, husks, desks, last, first</td>
</tr>
</tbody>
</table>

### Data Collection

- Administer probe of target sound/pattern in untrained words (5 untrained words with target sound/feature every 4-6 weeks)
- Administer probe of related but untrained sound/pattern affected by same error (5 words with untrained sound/pattern every 4-6 weeks)
- Consider moving target to "maintenance" when 40% of untrained probe items are correct (Oswang & Bain, 1994)
Treatment of Speech Sound Disorders

EBP - dismissal
- Olswang & Bain (1994) when child reached 40% correct on untrained probe items, did not need additional treatment on target
- Williams (2003) – indicates that treatment for a specific phoneme collapse can be terminated when child achieves 50% accuracy on conversational probe

EBP - Dismissal
- Diedrich & Bangert (1980) students dismissed at 75% correct for /s/ and /r/ at conversational level had as much retention after 4 months as those dismissed at 95%+ correct level
- McKercher et al (1995) – children who achieved 75% accuracy maintained or improved performance after therapy ended
- Elbert et al (1990) – preschoolers continued to improve 3 months post-treatment

Internet Resources
- http://www.mnsu.edu/comdis/kuster2/sptherapy.html
- http://speech-language-therapy.com/sitemap.htm
- http://slpath.com
- http://www.apraxia-kids.org
- EdHelper /r/ (www.edhelper.com/phonics/Consonants12.htm) and “er” (www.edhelper.com/phonics/Vowels11.htm)
Internet Resources

- John’s /r/ word search - (www.thepotters.com/puzzles/rwords.html)
- Vowel + r flash cards and handout set (www.mes-english.com/phonicsr-controlled.php)
- A story for /r/ (www.speechtx.com/emergent/consonant_r.htm)
- Racer Rabbit Rummy by Amy Strommer (http://edweb.sdsu.edu/courses/edtec670/Cardboard/Card/R/RacerRabbit.html)
- Say It Right (www.sayright.org/free-stuff.html)

Joshua – Phonological Processes

- Comb = hom k/h#
  (Backing)
- Cold = tot FR, CR, PVD, AA
- Big = bht FR, PVD
- Sheep = ti FR, Stop, SD, FCD
- School = tu FR, CR, SD, FCD
- Wet = bhp Stop, LA
- Ball = ba FCD
- Soup = tu Stop, SD, FCD

Case Analysis - PCC

<table>
<thead>
<tr>
<th>Word</th>
<th>Correct</th>
<th>Intended</th>
</tr>
</thead>
<tbody>
<tr>
<td>balloon</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>coat</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Dad</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>get</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>no</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>one</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Mommy</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>foot</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>that</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

7/10 (70%)
<table>
<thead>
<tr>
<th>Target</th>
<th>Production</th>
<th>PCC</th>
<th>PWM</th>
</tr>
</thead>
<tbody>
<tr>
<td>comb</td>
<td>hom</td>
<td>1/2</td>
<td>CVC &gt; CVC (+)</td>
</tr>
<tr>
<td>cold</td>
<td>tot</td>
<td>0/3</td>
<td>CVCC &gt; CVC (-)</td>
</tr>
<tr>
<td>big</td>
<td>bit</td>
<td>1/2</td>
<td>CVC &gt; CVC (+)</td>
</tr>
<tr>
<td>sheep</td>
<td>tl</td>
<td>0/2</td>
<td>CVC &gt; CV (-)</td>
</tr>
<tr>
<td>school</td>
<td>tu</td>
<td>0/3</td>
<td>CCVC &gt; CV (-)</td>
</tr>
<tr>
<td>wet</td>
<td>bE:p</td>
<td>0/2</td>
<td>CVC&gt;CVC (+)</td>
</tr>
<tr>
<td>ball</td>
<td>ba</td>
<td>1/2</td>
<td>CVC&gt;CV (-)</td>
</tr>
<tr>
<td>soup</td>
<td>tu</td>
<td>0/2</td>
<td>CVC&gt;CV (-)</td>
</tr>
</tbody>
</table>

3/18 = 16.6%  
3/8 = 37.5%