



Got /r/ Problems?

A Phonetically Consistent Approach to /r/ Remediation™



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www.sayitright.org

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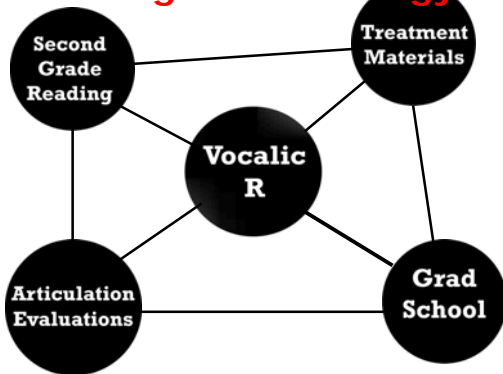


Discussion

The lack of a comprehensive remediation strategy is rooted in a general misunderstanding of the /r/ phoneme, deficiencies in post-graduate education instruction, deficient remediation materials, and most notably-- no generally accepted *effective* method for tackling core /r/ phoneme misarticulation.

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Integrated Strategy



Objectives

You will:

- Identify the 8 /r/ controlled vowels.
- Know how to phonetically evaluate and treat the various word positions of the 8 /r/ controlled vowels.
- Be able to write measurable, objective IEP goals for the /r/ phonemes.
- Be able to differentiate between visual and non-visual /r/ controlled vowels.
- Be able to implement at least 3 articulation techniques to elicit the /r/ phoneme.
- Know the benefits of evaluating and treating /r/ n. n

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Presentation Overview

- Targeted for intermediate level of knowledge. However, encompass entry-level to experienced clinicians.
- Research review
- Evaluation procedure
- Specific treatment strategies
- Multi-media: Video and Case Studies

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Facts About /r/

- /r/ can be consonantal (e.g. *red*) or vowel-like (e.g. *star*).
- Consonantal /r/ and the 11 initial blends are easier to evaluate & treat.
- Vocalic /r/'s are more complex since they are comprised of 2 sounds: (the vowel + the /r/).

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Facts About /r/

- Vocalic /r/ can be separated into 6 variations: [ar], [air], [ear], [ire], [or], and [er].
- One of the most frequently misproduced sounds.
- One of the last sounds to be mastered.

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Facts About /r/

- Post-vocalic /r/ is influenced by vowel. (*i.e. floor, car, tower*)
- Regarded by SLPs as one of the most difficult disorders to correct.
- Manner and place of articulation is not easily described or categorized (*how and where its created*).

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The Changing Nature of /r/

The phoneme /r/ in the word "CAR" (/ar/ final) is pronounced differently from the word "FOR" (/or/ final) or the word "BUTTER" (/er/ final).

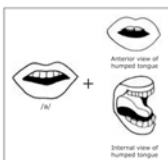


Figure 1-1 /r/ mouth position, as in CAR

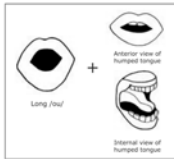


Figure 1-2 /r/ mouth position, as in FOR

However, the final /r/ phoneme in the word "ANCHOR" is pronounced the same as the /r/ phoneme in the word "BUTTER". This is because they are both phonetically /er/ final words despite the spelling differences.

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Categories of /r/

- **Prevocalic, Initial, or Consonantal /r/**
e.g. ring, run, race
- **Initial /r/ Blends**
e.g. price, break, straight
- **Vocalic /r/ or r-controlled**
e.g. door, star, skier
- **Medial/final /r/**
e.g. girl, swirl, barrel

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/r/ blends

[pr] pride	[br] brought	[tr] tried
[dr] drain	[fr] frog	[kr] crash
[gr] great	[shr] shrug	[str] string
[spr] spring		[thr] thread

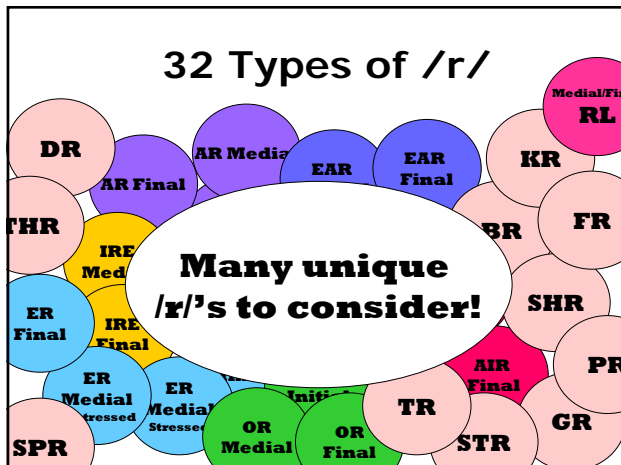
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Vocalic Variations of /r/

[er] Ernie buttercup feather	[or] Oville corn four	[ar] Archie barn star
[air] Erin ferry fair	[ire] Ireland fire fireman	[ear] Erie cereal deer

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Start thinking of these vocalic /r/ allophones as individual sounds in evaluation and treatment procedures.

Word Compilation

- Every /r/ card deck in 1999 was reviewed. Each only focused on initial, medial and final word positions. Some words had more than one /r/ per word.
- Since each vowel is produced differently, the words represent the manner and placement of each vocalic /r/ (vowel + /r/).

Word Compilation

- Phonetically consistent for each vocalic /r/ allophone.
- Only 1 /r/ per word for “pure” practice.
- All of the vocalic /r/'s had to be represented in each word position.
- Words and images were a tool for specific **elicitation techniques**.

Word Compilation

- All words had to contain age-appropriate vocabulary.
- Artistic images associated with the words had to be motivational for 6-10 year old learning.

Why is the compilation significant?

- Consistent ear training.
- Training oral musculature.
- Manner and production for the specific /r/ target to achieve mastery.
- Increase kinesthetic awareness
- Obtain & utilize student’s strengths
- Practice allophones that are phonetically consistent to student’s misproductions.



Traditional /r/ Therapy

One of the major sources of frustration in the field of speech-language pathology is that /r/ has been evaluated and **treated primarily for its consonantal qualities**, while either ignoring the more complex vocalic /r/ or grouping it into a single category.

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Traditional Evaluation & Treatment Method:

**initial /r/
medial /r/
final /r/**

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Traditional Approach to /r/

- Does not account for each unique /r/ phoneme.
- Contains more than one /r/ per word.
- Phonetically inconsistent probe lists for production training.
- Probe lists were compiled by spelling of word.

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Traditional Approach to /r/

- Excluded ALL INITIAL VOCALIC /r/'s.
- Did not evaluate or treat the individual vocalic /r/'s, but grouped vocalic /r/ into one category.

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[or] Initial	[or] Medial	[or] Final
Orville	Award	Snore
Ornament	Export	Adore
Organ	Fork	Core
Orient	Board	Floor
Oriole	Worn	Soar

Phonetic Approach

vs.

Initial	Medial	Final
Ribbon	Barefoot	Car
Run	Buttercup	Fear
Rain	Thorn	Four
Race	Wireless	Butter
Ring	Barn	Software

Traditional Approach

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Traditional Approach to /r/

- Of all previous research studies, none had EVER addressed initial vocalic /r/.
- The phonemic approach is the **pioneer** for evaluation and treatment of initial vocalic /r/.
- Prior only consonantal /r/ (initial) was considered.

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Does your method of /r/ treatment:

- Evaluate all variations of /r/?
- Evaluate /r/ in all word positions?
- Have phonetically consistent probe lists for treatment?
- Focus heavily on [er] to exclusion of other phonemes?

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Does your method of /r/ treatment:

- Provide a specific starting point for remediation?
- Provide measurable progress?
- Allow for targeting treatment on just the specific misproduced /r/'s?
- Establish/use natural tongue production?

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Does a phonetically consistent /r/ approach work?

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Phonetically Consistent Approach to /r/ Study

- Conducted in a naturalistic environment (elementary and middle school).
- Practicing SLP's collected the data and administered evaluation and treatment procedures.

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Phonetically Consistent Approach to /r/ Study

- 31 Students, 12 Speech Pathologists
- Ages 6-14 with average time in therapy of 1.66 years
- Single subject design
- Two baselines per student

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Phonetically Consistent Approach to /r/ Study

- 6 month period (Jan. – July)
- <15 hours treatment. End 20 hours.
- Method: Single target, until 80% accurate at sentence level 5 consecutive times. Re-test for generalization, then chose new target.

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Study Screening

- Very specific – Evaluated single words, phrases, and sentences for 32 different types of /r/.
- Provided correct percentage for each sound and word position. Allowed for easy determination of performance.
- Enabled researcher to logically choose intervention targets.

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The Entire World of R™
Advanced Screening for /r/

Student Name _____
SLP _____
Date _____ Age _____

Targets: _____ Screening # _____
+ for Correct 1 for Stimulable 0 for Incorrect

Prevoicall R Screening

Single Words	Phrases	Sentences
and	A red sofa.	I bought a red sofa.
rock	Found a rock.	Matt found a rock.
rabbit	A pet rabbit.	I have a pet rabbit.
racoon	A racoon.	We saw a racoon.
radio	The new radio.	The radio is new.
Rob	In Rob.	My name is Rob.
rose	A rose bush.	Joe cut the rose bush.

Total Prevoicall R Correct (out of 24): _____ Percent Correct _____

AR Screening

Single Words	Phrases	Sentences
art	The art.	We saw the art.
arm	Bob's arm.	I bumped Bob's arm.
arcade	Arcade games.	I played arcade games.

Total AR Correct (out of 6): _____ Percent Correct _____

EAR Screening

Single Words	Phrases	Sentences
earache	An earache.	I had an earache.
earring	The earring.	She put on the earring.
earmuffs	The earmuffs.	I found the earmuffs.

Total EAR Correct (out of 6): _____ Percent Correct _____

AIR Screening

Single Words	Phrases	Sentences
hears	The hears.	The hears is hears.
airplane	An airplane.	An airplane goes fast.
area	This area.	This area is open.

Total AIR Correct (out of 6): _____ Percent Correct _____

PAR Screening

Single Words	Phrases	Sentences
farm	At the farm.	We saw animals at the farm.
Denmark	The cart.	We will go to Denmark.
cart	The cart.	We pushed the cart.

Total PAR Correct (out of 6): _____ Percent Correct _____

PAR Screening

Single Words	Phrases	Sentences
stared	We stared.	We stared at the house.
Paris	Went to Paris.	Cathy went to Paris.
cart	Went to Paris.	Went to Paris.

Total PAR Correct (out of 6): _____ Percent Correct _____

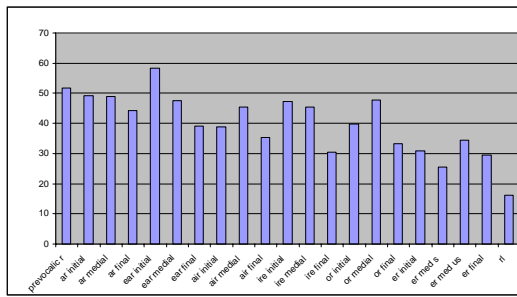
PAR Screening

Single Words	Phrases	Sentences
hear	The black hear.	The black hear ate the food.
hair	Nice hair.	You have nice hair.
fair	At the fair.	Bill ate at the fair.

Total PAR Correct (out of 6): _____ Percent Correct _____



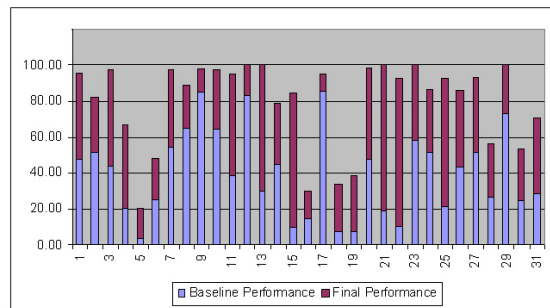
Correct Productions at Baseline



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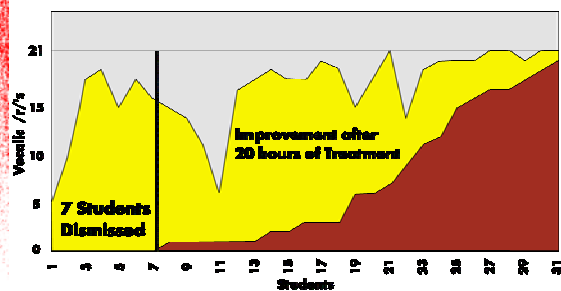
Improvement Baseline to Final



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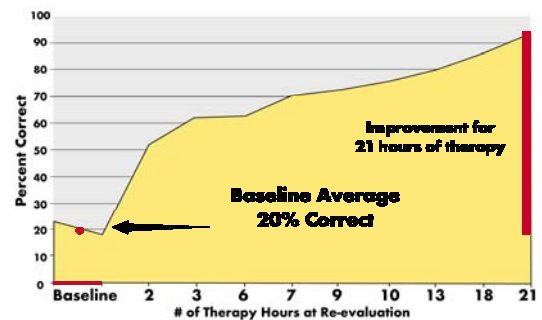
Start-End Errors



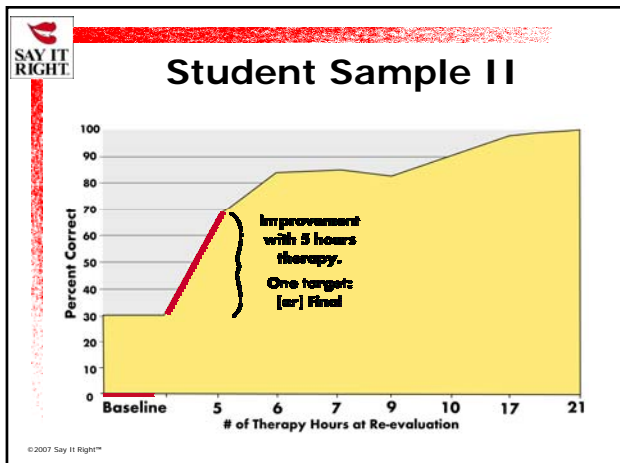
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Student Sample I



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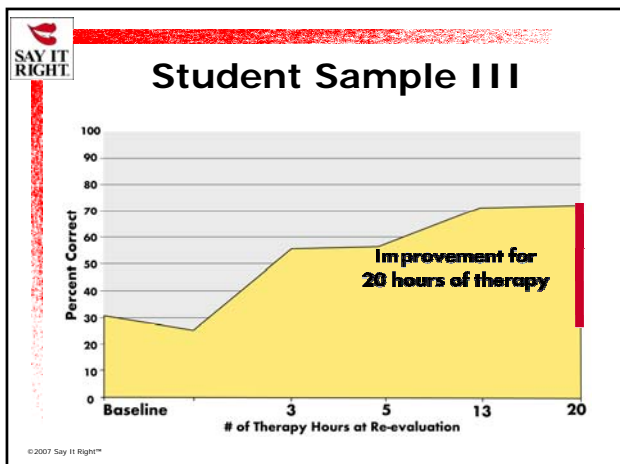
Example of Generalization

Student Name: C.C. Target: ar final
SLP: NJA

Baseline/Maintenance Screening Results

Screening	Perceptive /r/	AR Initial	AR-Midline	AR-Final	VR Initial	VR-Midline	VR-Final	WR Initial	WR-Midline	WR-Final	WR-Midline (Generalized)	WR-Final (Generalized)
Baseline Screening #1												
Date: 1-3-05	100	78	76	20	0	0	0	0	0	0	0	0
Baseline Screening #2												
Date: 1-6-05	100	100	78	76	0	0	0	0	0	0	0	0
Maintenance Screening #1												
Date: 2-14-05	100	100	100	89	44	46	78	56	22	33	33	22
Maintenance Screening #2												

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- ## Research Results
- Generalization occurred for 100% of students.
 - 58% ended with 3 or fewer errors, 7 dismissed.
 - 4 out of 5 students corrected 5 or more /r/ errors.
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- ## Study Findings
- Therapists surprised at the improvement and the student's positive response to treatment.
 - Screening proved to be an excellent tool determining present level of performance.
 - Having one intervention target proved effective in achieving generalization.
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- ## Study Findings
- Demonstrated that the phonemic approach to /r/ could be replicated by school-based SLP's who only received a 2 hour training.
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Study Conclusion

Validated the theory that evaluating and treating /r/ phonetically based on word position and sound class is an effective method.

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Review: Reasons for using a phonetically consistent approach

- Better understanding of the complex nature of /r/.
- Measurable progress for students.
- Decrease in caseload size.
- Evidence-supported method which adds accountability for yourself, parents and school staff.

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What does this mean to me?

I just want to treat /r/!

Where do I start?

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Start With a Comprehensive Evaluation

- Evaluate **ALL** /r/'s in **ALL** positions to attain a comprehensive understanding of student's current ability.
- Anything less will leave you with a less than satisfactory picture.

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Evaluation

- Analyze comprehensive screening.
- Consider differences between phonemic screening vs. traditional.
- Learn importance of comprehensive screening
- Review phonemic approach evaluation and move beyond traditional /r/ therapy.

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Why Evaluate All Different Types of /r/?

To find a starting point for treatment. Research shows that *almost all students can produce at least 1 type of /r/.*

(Curtis & Hardy, 1959; Ristuccia, 2005).

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SAY IT RIGHT The Entire World of R[®] Screening Form

Student Name _____ Screening Date _____ Date of Birth _____
 Examiner _____

1. /r/ Initial	2. /r/ Medial	3. /r/ Final
4. /r/ Initial	5. /r/ Medial	6. /r/ Final
7. /r/ Initial	8. /r/ Medial	9. /r/ Final
10. /r/ Initial	11. /r/ Medial	12. /r/ Final
13. /r/ Initial	14. /r/ Medial	15. /r/ Final
16. /r/ Initial	17. /r/ Medial	18. /r/ Medial
19. /r/ Final	20. /r/	21. Pre-nucleic /r/

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SAY IT RIGHT The Entire World of R[®] Screening Form

Student Name Jacob Screening Date 10/24 Date of Birth 10/1-98
 Examiner C. Kewana

1. /r/ Initial	2. /r/ Medial	3. /r/ Final
4. /r/ Initial	5. /r/ Medial	6. /r/ Final
7. /r/ Initial	8. /r/ Medial	9. /r/ Final
10. /r/ Initial	11. /r/ Medial	12. /r/ Final
13. /r/ Initial	14. /r/ Medial	15. /r/ Final
16. /r/ Initial	17. /r/ Medial	18. /r/ Medial
19. /r/ Final	20. /r/	21. Pre-nucleic /r/

Jacob's Screening Result

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Jacob's Results

- Even though his production sounds flat and severe, Jacob does have productions that are correct and those that are stimulative.
- Use his productions to determine his natural production of /r/: *retroflexed or retracted*.

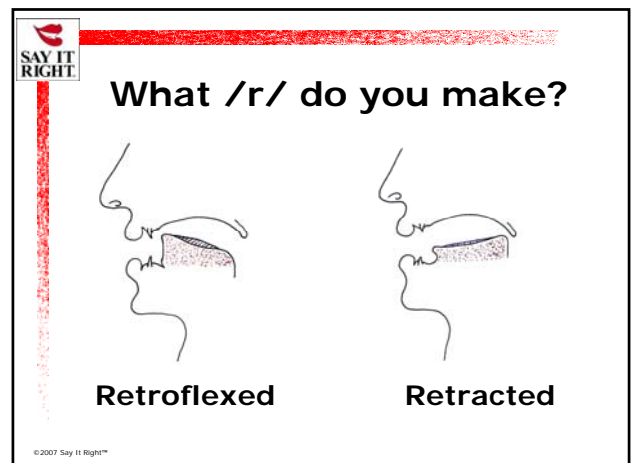
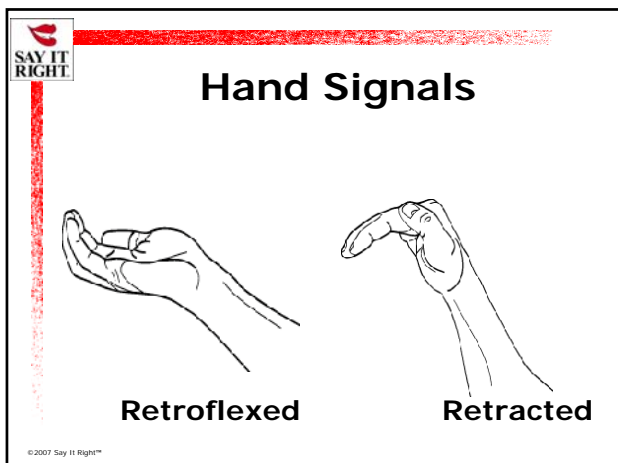
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How to Determine Productions of /r/

Instruct him to say one of the correctly produced /r/ words and ask what his tongue is doing.

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What /r/ do you make?

Who makes a retroflexed /r/?

Who makes a retracted /r/?

Who does both?

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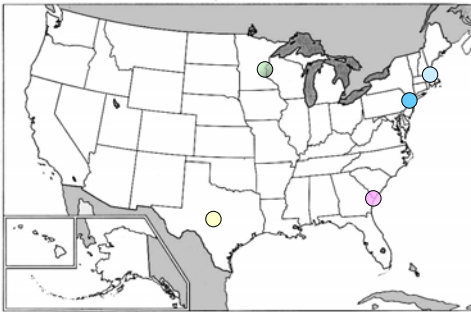
Why Establish Natural Production?

- To know which verbal cues and hand signals to use as your starting point.
- To use what the student's tongue does naturally.
- To help strategize treatment based on a facilitation context.

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Evaluating with Dialectical Differences



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Tenets of the Phonetically Consistent Approach

- Focus on one target at a time until it is corrected.
- Choose targets based on elicitation techniques that could be used.
- Eliminate elicitation techniques as quickly as possible.
- Choose new target once carry-over has been achieved.
- Maximize responses--150 per session.

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Plan Remediation

- Base intervention on target selected.
- Consistently focus only on target until corrected.
- Choose appropriate elicitation strategies matched to target selection.
- Use phonetically consistent probe lists.

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Choosing an Intervention Target



Based solely on screening results, choose one sound most likely to correct based on screening → highest correct percentage below 80%.

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Why focus on one sound and word position at a time?

- Enhances motor planning.
- Provides consistent practice & repetition.
- Ensures students know their goal.
- Allows productions of other /r/ word combinations not yet targeted to begin to generalize.

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Treatment Goal Samples

Sample Goal:

Alex will produce [ar, or, ire, and ear] with 80% accuracy at the sentence level for 5 consecutive times.

Sample Working File Goal:

Alex will produce [ar] initial, medial & final word positions with 80% accuracy for 5 consecutive sessions. [ar] final will be the first target followed by [ar] initial.

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Review: Evaluation and Target Selection

- Evaluate all variations of /r/.
- Interpret the evaluation results.
- Choose one intervention target by determining allophone with highest chance of improvement.
- Write goals and objectives.

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Tips for Working with Students

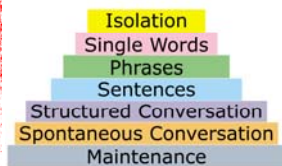
- Multi-modality--involve many senses.
- Repetition--get as many practice words in as possible.
- Don't get ahead on homework.
- Consistent, consistent, consistent.

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Blocked vs. Random Practice

Traditional Blocked Practice



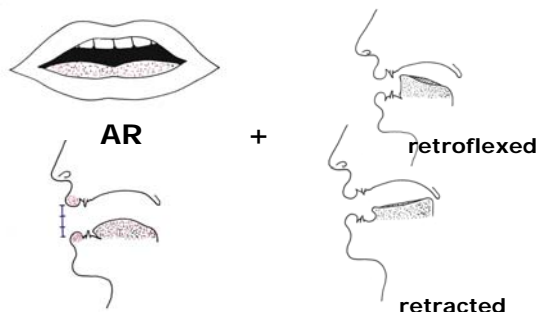
Random Practice



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Visual Teaching Tools



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Say Ahhh-RR!

Name: _____ Date: _____

Directions: What does the doctor or dentist say when they want you to open your mouth? "Ahh." Color in the picture and say "ahh-RR" while coloring. For correct pronunciation, student gets to color in an "ar" letter combination. For an incorrect answer, instructor colors in an "ar." Place this in front of the student when teaching /ar/ as a visual reminder to open his/her mouth wide for the /ar/ sound.

Isolation

Say Ahhh-RR!

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Isolation

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/ar/ Initial Single Words

Name: _____ Date: _____

Directions: Say each word slowly. Make sure to elongate the initial /ar/ sound. Mark the speech/homework block as appropriate for correct pronunciation.

<p><u>Ar</u>chie</p> <p>Speech _____ Homework _____</p>	<p>arg<u>u</u>ment</p> <p>Speech _____ Homework _____</p>
<p>art<u>i</u>fact</p> <p>Speech _____ Homework _____</p>	<p>Arg<u>e</u>ntina</p> <p>Speech _____ Homework _____</p>
<p><u>Ar</u>my</p> <p>Speech _____ Homework _____</p>	<p>arc<u>a</u>de</p> <p>Speech _____ Homework _____</p>

/ar/ Initial Single Words

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/ar/ Initial Phrases

Name: _____ Date: _____

Directions: Say each phrase slowly. Make sure to elongate the initial /ar/ sound. Mark the speech/homework block as appropriate for correct pronunciation.

	Speech	Homework
A big <u>Ar</u> madillo.		_____
Susan's <u>Ar</u> m.		_____
<u>Ar</u> t show.		_____
<u>Ar</u> chie the cat.		_____
<u>Ar</u> my boots.		_____

/ar/ Initial Phrases

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/ar/ Initial Sentences

Name: _____ Date: _____

Directions: Say each sentence slowly. Cycle through each set, changing the end of the sentence for the different /ar/ target words. Mark the speech/homework block as appropriate for correct pronunciation.

<p><u>Ar</u>chie likes...</p> <p>Speech _____ Homework _____</p>	<p>arcades</p>	<p>art</p>	<p>the architect's plans</p>
<p><u>Ar</u>den went to...</p>	<p>the Arctic</p>	<p>the army</p>	
<p><u>Ar</u>nie has two...</p>	<p>armadillos</p>	<p>arms</p>	

/ar/ Initial Sentences

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ARCHIE'S ART

Review the following words:

<u>Ar</u> den	<u>Ar</u> ion	artist
<u>Ar</u> chie	arcade	art
arm-in-arm	armful	

Tim and Arden lived in the town of Arion. One day, they walked downtown and saw Archie, the cat, playing with some art supplies that someone had lost. Both Tim and Arden picked up an armful of pallets and paints. In town, the artist saw them and gave them some money because they had found his art supplies. Then, Tim and Arden went to the arcade and spent the money on games and snacks. Finally, Tim and Arden went home arm-in-arm, happy to have had such a fun day.

With what was Archie the cat playing? _____

Who gave them money? _____

What did Arden and Tim do with the money? _____

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Elicitation Techniques

- Analyze screening results to determine the appropriate technique.
- Learn how to use the different techniques.
- Choose target on possible elicitation technique that could be used.

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Shaping an /r/ From a Word Position Student Can Say

- Go over the screening results together to educate the student about the /r/ variations that she can say.
- Use results of screening to determine appropriate elicitation techniques.

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Phonemic Approach Tips

- Write target /r/ controlled vowel on board to increase student's awareness that there are two or more sounds they need to produce.
- Model target sound for student.
- Use as many modalities as possible: visual, auditory and tactile cues.

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Phonemic Approach Tips

- Have student use a mirror so that she can see her own mouth. This is important to eliminate any lip rounding and ensure that the student is producing both the /r/ plus the vowel.
- Use phonetically consistent probe lists for production practice.

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Coarticulation

Use student's success in one word position to help shape the other misarticulated word positions.


Technique: Have student say one word and hold the tongue in the same position, then say the next word.

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Coarticulation

flower



Ernie



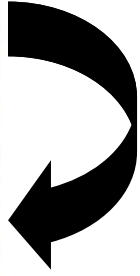
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Coarticulation

ER Screening

	Single Words	Phrases	Sentences
Initial	earth <input checked="" type="checkbox"/>	On earth. <input checked="" type="checkbox"/>	We live on planet earth. <input checked="" type="checkbox"/>
	Ernie <input checked="" type="checkbox"/>	Ernie went. <input checked="" type="checkbox"/>	Ernie went home. <input checked="" type="checkbox"/>
	herbal <input checked="" type="checkbox"/>	Herbal tea. <input checked="" type="checkbox"/>	Molly had herbal tea. <input checked="" type="checkbox"/>
Total ER Initial Correct (out of 9)		Percent Correct 100	
Medial Unvoiced	first <input type="checkbox"/>	On first. <input type="checkbox"/>	Who's on first base? <input type="checkbox"/>
	turkey <input type="checkbox"/>	A turkey. <input type="checkbox"/>	We bought a turkey. <input type="checkbox"/>
	mermaid <input type="checkbox"/>	The mermaid. <input type="checkbox"/>	The mermaid swam away. <input type="checkbox"/>
Total ER Medial Unvoiced Correct (out of 6)		Percent Correct 0	
Medial Voiced	buttercup <input type="checkbox"/>	Picked a buttercup. <input type="checkbox"/>	Kim picked a buttercup. <input type="checkbox"/>
	camera <input type="checkbox"/>	A camera. <input type="checkbox"/>	I have a camera. <input type="checkbox"/>
	wonderful <input type="checkbox"/>	Wonderful day. <input type="checkbox"/>	It is a wonderful day. <input type="checkbox"/>
Total ER Medial Voiced Correct (out of 6)		Percent Correct 0	
Final	father <input type="checkbox"/>	My father. <input type="checkbox"/>	My father is home. <input type="checkbox"/>
	butter <input type="checkbox"/>	Put butter. <input type="checkbox"/>	I put butter on the toast. <input type="checkbox"/>
	tower <input type="checkbox"/>	The tower. <input type="checkbox"/>	The tower is tall. <input type="checkbox"/>
Total ER Final Correct (out of 6)		Percent Correct 44	




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Coarticulation: Use Final to get Initial

flowER



Ernie



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Use Initial /r/ to Elicit other /r/'s

- A successfully produced prevocalic /r/ can be used to shape other /r/ variations.


Example: *ear red*
slowly fade out *red*.

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Whisper Technique

car




+

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Voiced vs. Voiceless Cognates



Great / Crate

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How do you uncover cognate production disparities?

Probe for vocalic/consonantal and consonantal/vocalic combinations for a target allophone. (Elicitation Probe).

orp/orb	por/bor
ort/ord	tor/dor
ors/orz	sor/zor

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When to move onto the next sound and/or word position?

- Once a word position for target /r/ is mastered (criterion is 80% for 5 consecutive sessions at sentence level), re-administer screening to assist in choosing the next target.
- Re-administer advanced screening to choose next intervention target.

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Always Review Previously Mastered Sounds

- Check for stabilization and generalization.
- Beginning of each therapy session.
- Use previously mastered sounds to help teach new sounds.
- Use well produced sounds to increase self-awareness of correct productions.

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Ways to Encourage Self-Monitoring & Evaluation

- Use a rating system: Students rate themselves between a 1 and 10.
- Artic check-off: Students check correct responses on data sheet.
- Marbles in a jar.



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Ideas for Getting Multiple Responses

- Use word lists or picture cards.
- Use a tally counter.
- Set a timer and reward for correct productions.
- Have a contest to encourage competition between two or more students or you and the student.

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Working with Groups

- Advantages: Encourages students to monitor each other and use their /r/s in conversation.
- Disadvantages: Minimizes individual practice time and one on one attention; Challenging to meet the need of individual students when goals are different.

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Age to Begin Treatment

- Developmental: at 7-8 years old.
- Normative Sequence: when muscles are matured and /r/ controlled vowels are taught in 2nd grade curriculum.
- Complexity Approach: Begin with later developing sounds to achieve generalization in early developing sounds (Morrisette, et al 1996).

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Appropriate Homework

- Stage 1: Just practicing natural tongue positioning to gain kinesthetic awareness.
- Stage 2: Send home words that the student can consistently say perfectly in therapy.

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Homework: Good Practice Times

- In the morning before brushing teeth.
- Before or after homework.
- As soon as they get home from school or right before dinner.
- Before they go to bed at night.
- At the dinner table or use phone if working on transferring /r/ to conversation.
- Have family members help if needed.

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Ways to Measure Student Progress:

- Briefly review previously mastered targets to check for retention.
- Use advanced screening tool to collect current data and evaluate direction of therapy.
- Use Daily Data Collection and Daily Tally Sheets to measure progress day to day.

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Daily Data Collection

Student Name _____ IEP Goals: _____
 SLP _____
 Date _____ Date of Birth _____ Working File Gender _____
 IEP Date _____ Screening Date _____

Daily Data Collection Sheet

Date	Target	Activities	Tally	Remarks/ Difficult Words

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Reasons for Lack of Progress

- Wrong Target. If student is not making progress in the first two sessions, try another target.
- Not completing homework.
- Unable to move past mastered targets due to misunderstanding.

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Challenges To Success: When Things Go Wrong

- Lack of motivation.
- Difficulty discriminating correct versus incorrect productions.
- Student who appear to have mastered a sound but have not.
- Students with multiple disorders.
- Group therapy sessions in which all students are working on a different /r/ variation.
- Students are not progressing.

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What to try when things go wrong:

- Re-administer the screening to check for generalization and choose a new target.
- Take a break.
- Review /r/'s that the student can correctly produce.

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How do you know when a student is ready to be dismissed?

- When students are able to say all /r/ variations with at least 80% mastery at the sentence level.
- When students, parents, and teachers report it is no longer a problem.
- When articulation needs can be addressed at home or in the classroom.

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Review: Intervention

- Treat only one target until mastered with criterion of 80% at sentence level over 5 consecutive sessions.
- Re-evaluate.
- Select new target and treat.
- Continue until all sounds correct.
- Review and reinforce.

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Case Study #1

- Matthew
- 10 year-old 5th grader
- Mispronounces his /r/'s
- You conduct screening....

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The Entire World of R™
Advanced Screening for /r/

Student Name: Matthew
SLP: C. R. ...
Date: 10-11-05 Age: 10

Targets: Screening # 1
+ for Correct 1 for Stimulable 0 for Not Stimulable

Prevocalic R Screening

Single Words	Phrases	Sentences
red	A red wolf.	I brought a red wolf.
rock	Found a rock.	Mark found a rock.
rabbit	A pet rabbit.	I have a pet rabbit.
racoon	A racoon.	We saw a racoon.
radar	The new radar.	The radar is new.
reach	In reach.	My name is Reach.
rose	A rose bush.	Joe cut the rose bush.

Use All Five Correct (out of 8) _____ Percent Correct: 100%

AR Screening

Single Words	Phrases	Sentences
art	The art.	We saw the art.
arr	Bob's arr.	I brought Bob's arr.
arrcade	Arrcade games.	I played arrcade games.

Use All Five Correct (out of 3) _____ Percent Correct: 100%

EAR Screening

Single Words	Phrases	Sentences
erratic	An erratic.	I had an erratic.
errand	The errand.	She got on the errand.
errands	The errands.	I found the errands.

Use All Five Correct (out of 3) _____ Percent Correct: 100%

AIR Screening

Single Words	Phrases	Sentences
air	The air.	The air is hot.
airline	An airline.	The airline goes fast.
airplane	An airplane.	An airplane goes fast.
air	The air.	She saw a pair of air.

Use All Five Correct (out of 4) _____ Percent Correct: 100%

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IRE Screening

interview	She cut the interview.	She cut the interview.
interview	She cut the interview.	She cut the interview.
interview	She cut the interview.	She cut the interview.

OR Screening

orca	We saw an orca whale.	We saw an orca whale.
orca	We saw an orca whale.	We saw an orca whale.
orca	We saw an orca whale.	We saw an orca whale.

ER Screening

earth	We live on planet earth.	We live on planet earth.
earth	We live on planet earth.	We live on planet earth.
earth	We live on planet earth.	We live on planet earth.

RL Screening

read	I have a great necklace.	I have a great necklace.
read	I have a great necklace.	I have a great necklace.
read	I have a great necklace.	I have a great necklace.

Notes: Needs to open mouth wider. Mom + home - need to add privacy.

The Entire World of R™
Advanced Screening for /r/ Initial Blends

Student Name: Matthew
SLP: C. R. ...
Date: 10-11-05 Age: 10
Targets: Screening # 1

+ for Correct 1 for Stimulable 0 for Not Stimulable

Initial Dr Blends

dream	I had a bad dream.	I had a bad dream.
dream	I had a bad dream.	I had a bad dream.
dream	I had a bad dream.	I had a bad dream.

Initial Pr Blends

price	I bought the price.	I bought the price.
price	I bought the price.	I bought the price.
price	I bought the price.	I bought the price.

Initial Br Blends

bird	I saw a bird.	I saw a bird today.
bird	I saw a bird.	I saw a bird today.
bird	I saw a bird.	I saw a bird today.

Initial Tr Blends

trap	The animal was in the trap.	The animal was in the trap.
trap	The animal was in the trap.	The animal was in the trap.
trap	The animal was in the trap.	The animal was in the trap.

Initial Shr Blends

shrink	Jim shook the clothes.	Jim shook the clothes.
shrink	Jim shook the clothes.	Jim shook the clothes.
shrink	Jim shook the clothes.	Jim shook the clothes.

Initial Str Blends

string	Jim played with string.	Jim played with string.
string	Jim played with string.	Jim played with string.
string	Jim played with string.	Jim played with string.

Initial Fr Blends

dream	The ice was frozen.	The ice was frozen.
dream	The ice was frozen.	The ice was frozen.
dream	The ice was frozen.	The ice was frozen.

Initial Spr Blends

spring	The plant sprang.	The plant sprang up.
spring	The plant sprang.	The plant sprang up.
spring	The plant sprang.	The plant sprang up.

Notes: No problem with blends.

Matthew Results

Prevoicble R	AR Initial	AR Medial	AR Final	EAR Initial	EAR Medial	EAR Final	IR Initial	IR Medial	IR Final	OR Initial	OR Medial	OR Final	RL						
100	55	88	66	100	100	100	100	100	100	66	66	88	88	100	100	100	100	77	100

- Student uses retracted /r/
- Successfully produces all initial /r/ blends.

Matthew Potential Target Options

Prevoicble R	AR Initial	AR Medial	AR Final	EAR Initial	EAR Medial	EAR Final	IR Initial	IR Medial	IR Final	OR Initial	OR Medial	OR Final	RL						
100	55	88	66	100	100	100	100	100	100	66	66	88	88	100	100	100	100	77	100

Matthew goals

IEP Goals Matthew will produce [ar], [er], and [or] with 80% accuracy over 5 consecutive therapy sessions as measured by SLP tally and probe test.

Working File Goals Matthew will produce [ar] initial, Medial, and Final word positions with 80% accuracy over 5 consecutive sessions. [ar] Final is the first target followed by [ar] initial. Matthew will open his mouth wider during [ar] productions.



Case Study #2

- Shelly is 7-year-old 2nd grader.
- Referred by resource teacher.
- Directions: Using results, determine intervention target.

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Shelly Screening Results

Prevocals R	AR Initial	AR Medial	AR Final	EAR Initial	EAR Medial	EAR Final	IR Initial	IR Medial	IR Final	OR Initial	OR Medial	OR Final	UR Initial	UR Medial	UR Final				
100	33	33	0	100	55	22	100	66	66	33	0	33	0	66	0	88	22	0	0

- Student uses retracted /r/
- Successfully produces all initial /r/ blends.

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Which target do you choose and why?

Prevocals R	AR Initial	AR Medial	AR Final	EAR Initial	EAR Medial	EAR Final	IR Initial	IR Medial	IR Final	OR Initial	OR Medial	OR Final	UR Initial	UR Medial	UR Final				
100	33	33	0	100	55	22	100	66	66	33	0	33	0	66	0	88	22	0	0

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Potential Targets

Which are below 80% and above 50%

- [ear] medial – 55%
- [er] medial unstressed – 66%
- [ire] medial – 66%
- [air] medial – 66%

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Shelly's Target Considerations using Elicitation Techniques

- Coarticulation within a sound family.
- ear final (0%) + ear initial (100%)
- air final (0%) + air initial (100%)
- or final (0%) + or initial (88%)

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Which target do you choose and why?

Prevocals R	AR Initial	AR Medial	AR Final	EAR Initial	EAR Medial	EAR Final	IR Initial	IR Medial	IR Final	OR Initial	OR Medial	OR Final	UR Initial	UR Medial	UR Final				
100	33	33	0	100	55	22	100	66	66	33	0	33	0	66	0	88	22	0	0

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Intervention Target = Depends on success using the elicitation techniques

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Case Study # 3

- Billy is 11 years old.
- Referred by his teacher because he can't say /r/.
- He loves race cars and trucks, but kids make fun of his speech when he's playing.

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Billy Screening Results

Pre-vocalic R	AR Initial	AR Medial	AR Final	EAR Initial	EAR Medial	EAR Final	OR Initial	OR Medial	OR Final	IR Initial	IR Medial	IR Final	ER Initial	ER Medial	ER Final	OR Medial	OR Final	OR Medial	OR Final	BL
35	77	33	0	100	100	88	100	100	100	44	33	0	11	0	100	11	77	11	11	0

Pr	Br	Tr	Dr	Kr	Gf	Thr	Shr	Fr	Spr	
88	11	55	100	88	88	100	100	88	88	22

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Billy's Potential Targets

Which are below 80% and above 50%

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How to choose if both targets are 77%?

Use Elicitation Probe to determine stimulability of all vocalic-consonantal combinations for a specific word position.

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Which Target?

- Probe for cognates for [ar] initial and [or] final.
- [br] and [spr] blends are only 11%; [tr] is only 55%.
- Work on vocalic /r/ first, see if generalization occurs on these isolated blends combinations.

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[ar] Probe

Probe all [ar] initial allophones against all possible consonantal combinations

Bilabials (/p, b/)		Labiod		Alveo		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
arp	+ p	arp	+ p	arp	+ p	arp	+ p
arb	+ b	arb	+ b	arb	+ b	arb	+ b
Palatals (/j, ʃ, ʒ, ʝ/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
arsh	+ sh	arsh	+ sh	arsh	+ sh	arsh	+ sh
arch	+ ch	arch	+ ch	arch	+ ch	arch	+ ch
arzh	+ zh	arzh	+ zh	arzh	+ zh	arzh	+ zh
ardg	+ dg	ardg	+ dg	ardg	+ dg	ardg	+ dg
Velars (/k, g/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
ark	+ k	ark	+ k	ark	+ k	ark	+ k
arg	+ g	arg	+ g	arg	+ g	arg	+ g
Asals (/m, n, ŋ/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
arm	+ m	arm	+ m	arm	+ m	arm	+ m
arn	+ n	arn	+ n	arn	+ n	arn	+ n
arng	+ ng	arng	+ ng	arng	+ ng	arng	+ ng
Liquids (/l/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
arl	+ l	arl	+ l	arl	+ l	arl	+ l
arl	+ l	arl	+ l	arl	+ l	arl	+ l
Glides (/w, j/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
arw	+ w	arw	+ w	arw	+ w	arw	+ w
arj	+ j	arj	+ j	arj	+ j	arj	+ j
Glottals (/h/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
arh	+ h	arh	+ h	arh	+ h	arh	+ h

[or] Probe

Probe all [or] initial allophones against all possible consonantal combinations

Bilabials (/p, b/)		Labiod		Alveo		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
orp	+ p	orp	+ p	orp	+ p	orp	+ p
orb	+ b	orb	+ b	orb	+ b	orb	+ b
Palatals (/j, ʃ, ʒ, ʝ/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
orsh	+ sh	orsh	+ sh	orsh	+ sh	orsh	+ sh
orch	+ ch	orch	+ ch	orch	+ ch	orch	+ ch
orz	+ zh	orz	+ zh	orz	+ zh	orz	+ zh
ordg	+ dg	ordg	+ dg	ordg	+ dg	ordg	+ dg
Velars (/k, g/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
ork	+ k	ork	+ k	ork	+ k	ork	+ k
org	+ g	org	+ g	org	+ g	org	+ g
Asals (/m, n, ŋ/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
orm	+ m	orm	+ m	orm	+ m	orm	+ m
orn	+ n	orn	+ n	orn	+ n	orn	+ n
orning	+ ng	orning	+ ng	orning	+ ng	orning	+ ng
Liquids (/l/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
orl	+ l	orl	+ l	orl	+ l	orl	+ l
orl	+ l	orl	+ l	orl	+ l	orl	+ l
Glides (/w, j/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
orw	+ w	orw	+ w	orw	+ w	orw	+ w
orj	+ j	orj	+ j	orj	+ j	orj	+ j
Glottals (/h/)		Labiod		Alveo <td colspan="2">Alveolar </td>		Alveolar	
initial	medial	initial	medial	initial	medial	initial	medial
orh	+ h	orh	+ h	orh	+ h	orh	+ h

Which Target to Choose?

- [or] initial only shows one instance of using voiced vs. voiceless cognates.
- [ar] initial probing shows five instances of using voiced vs. voiceless cognates.

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Intervention Target = [ar] Initial

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Working File Goal

Student will produce **[ar]** in the initial position with the following phonemes found on the elicitation probe f/v, s/z, sh/j, k/g, and m/n, with 80% accuracy in single words phrases and sentences.

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Suggested Treatment

- Voiced exercises- use correct voiced cognates to elicit misproduced words.
 - Use contrast words:
 - arza and arsenic
 - argue and ark
- Practice [ar] initial words until 80% accuracy at the sentence level is achieved.
- Re-screen. Pick new target.

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Questions?

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Handout

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