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## Got /r/ Problems?

*A Context-Specific Phonetic Treatment Methodology for /r/*



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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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## 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).

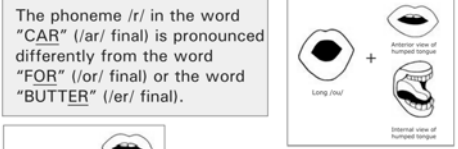


Figure 1-1 /r/ mouth position, as in CAR

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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## 8 Variations of /r/


<u>/er/</u> Ernie Buttercup Feather	<u>/or/</u> Orville Corn Four	<u>/ar/</u> Archie Farm Star
<u>/air/</u> Erin Ferry Fair	<u>/ire/</u> Ireland Fire Fireman	<u>/ear/</u> Erie Cereal Deer
<u>/r/</u> Meryl		<u>Prevocalic /r/</u> Rosa

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Student Name \_\_\_\_\_  
Screening Date \_\_\_\_\_ Date of Birth \_\_\_\_\_  
Examiner \_\_\_\_\_

**The Entire World of R Screening Form**



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## Why Evaluate the 21 Variations of /r/?

- To determine treatment targets (some students can produce more than you think).
- Treatment targets.
  - Only the misproduced /r/ word classes and positions will be targeted in therapy.
  - Successful word positions in a word class will be used to elicit other word positions. (e.g. ar)
  - /r/ sounds that are close to the correct production will be shaped in therapy.

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## Benefits of Using a Phonetic Approach To Remediate /r/

- Vocalic /r/'s are evaluated and treated separately
- Phonetically consistent intervention materials-production training.
- Precise Intervention targets-Uses appropriate elicitation techniques
- Can track progress/Measure growth.

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## Benefits of Using a Phonetic Approach To Remediate /r/

- A refinement of SLP's knowledge
- Supports 2<sup>nd</sup> grade literacy block.
- Musculature and auditory system improve more quickly)
- Other misarticulated /r/'s begin to generalize (Elbert and McReynolds, 1975).

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## Alternate Perspective 10 Phones of R\*

- Not grouped by Initial, medial and final word positions
- Grouped rather by vocalic "R"
- Contexts
- Treatment is based on contexts

\* (Downes, 1981, Shine & Secord 1997)

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## 10 Phones of R

1. /r/ glide/resonant consonant - red
2. Voiced fricative - drop
3. Voiceless fricative - trip
4. ear – fierce
5. air – shared
6. ar – cart
7. or – fork
8. ur – toured
9. er (stressed) - hurt
10. er (unstressed) – sister

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## Deficiencies of Traditional Approach

- Vocalic /r/'s are not evaluated and treated separately (many of the /r/ controlled vowels are not represented in the list)
- Probe lists are phonetically inconsistent, difficult to achieve sound stabilization and practice production training.

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## Deficiencies of Traditional Approach Continued

- Simplistic evaluation which provides not specific starting point for therapy.
- Remediate all of the /r/'s according to word position, not just the mispronounced /r/'s
- Difficult to track progress/Measure growth.

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## The Phonetic-Based Approach Includes Many Aspects of the "Traditional"-Based Articulation Approaches

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## Phonetic-Traditional

1. Phonetically consistent probe lists for sound stabilization. (Van Riper)
2. Begins with production training rather than sensory-perceptual training (Van Riper). Student identifies target sound against other speech sounds.

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## Phonetic-Traditional

3. Intervention begins with production training/ sound establishment:
  - a. Isolation
  - b. Single Words
  - c. Phrase
  - d. Sentence
  - e. Structured Conversation
  - f. Spontaneous Conversation
  - g. Maintenance

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## Phonetic-Traditional

4. Phonetic-placement theory- Scripture & Jackson 1927
  - a. Give verbal directions
  - b. Student observes self/clinician in mirror
  - c. Observing diagrams/pictures of articulators while producing sounds.
  - d. Auditory stimulation/Mode--Secord

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## Phonetic-Traditional

5. Modification of other sounds. Clinician uses another sound in the client's repertoire as a point of departure (Van Riper, 1978) (Example, within the ar sound class the student can say *farm*, but not *far*.)

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/air/ Initial	/air/ Medial	/air/ Final
Arizona	Dairy	Millionaire
Erin	Ceremony	Square
Heiress	Haircut	Scare
Arrowhead	Barefoot	Tear
Aerosol	Stairs	Pair

vs.

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

**Phonetic Approach**

**Traditional Approach**

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## Age Appropriate Time to Begin Treatment

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

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## Remediation

- Work on only one type of /r/ at a time. (e.g. /ar/ initial) while slowly introducing other word positions within that variation (e.g. /ar/ final).
- Target and complete one /r/ controlled vowel combination (e.g. ar) before moving onto another /r/ controlled vowel combination (e.g. or) –80%
- Use success in one word position to shape the other word positions (e.g. if they are successful with /ar/ medial words, use their success in that position to shape the other /ar/ word positions).

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## Why Focus on One Sound and Word Position at a Time?

- Enhances motor planning/ auditory system.
- Consistent practice for the student.
- Student knows goal (s).
- Self-monitoring skills improve.

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## Sample Evaluation of /r/

- **Case Study:** Erin Blair, an 8 yr old, is frustrated because she can't correctly pronounce her name. Also, the classroom teacher is concerned with her spelling and reading of various /r/ words.

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Student Name: Erin Blair  
 Screening Date: 5-1-03 (Date of Birth: 2-20-93)  
 Examiner: C. Ristuccia

The Entire World of R™ Screening Form

## Erin Blair's Screening Result

1. /r/ Initial	+	2. /ar/ Medial	+	3. /ar/ Final	+
4. /er/ Initial	+	5. /er/ Medial	+	6. /er/ Final	+
7. /ur/ Initial	+	8. /ur/ Medial	+	9. /ur/ Final	+
10. /ir/ Initial	+	11. /ir/ Medial	+	12. /ir/ Final	+
13. /er/ Initial	+	14. /er/ Medial	+	15. /er/ Final	+
16. /ur/ Initial	+	17. /ur/ Medial	+	18. /ur/ Final	+
19. /ir/ Initial	+	20. /ir/ Medial	+	21. /ir/ Final	+

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## Erin Blair Evaluation

- Based on *The Entire World of R™* screening evaluation, only initial and final /air/ words should be targeted in the remediation process.
- **Sample Probe Lists:**

<u>/air/ Initial</u>	<u>/air/ Final</u>
Arizona	Millionaire
Erin	Square
Heiress	Scare
Arrowhead	Tear
Aerosol	Pair

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## Visual & Non-Visual /r/ Controlled Vowels

- Varies student to student.
- This theory is based on the fact that babies learn visual phonemes first. (e.g. /p/, /b/, /m/)

<u>Visual Vowels</u>	<u>Non-Visual Vowels</u>
/ar/	
Prevocalic /r/	/er/
/or/	
/ire/	/r/
/ear/	
/air/	

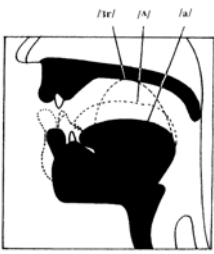
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## /a/ and /er/= /ar/

**Central Vowels:** These vowels are made with the middle portion of the tongue arched.

Vowel F: /ɜr/ as in *Burn*  
 Vowel G: /ɪr/ as in *Cut*  
 Vowel H: /ɑr/ as in *Father*  
*(is between a central and back vowel)*




Central Vowel Internal View

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## Slowing Down Production of /r/



Anterior view of the humped tongue  
 Internal view of the humped tongue

Elongate /a/ for 1.....2.....3... seconds  
 Elongate the humped tongue for 1.....2.....3... seconds

- Say the vowel for 2-3 seconds and then the /r/ for 2-3 seconds.

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## Elicitation Techniques

- Write target /r/ controlled vowel on board to increase students awareness that there are two or more sounds need to be produced.
- Model target sound for student.
- Target one entire position before moving onto the next word position.

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## Elicitation Techniques

- Use a mirror so that client can see his/her own mouth. Visual feedback helps to eliminate lip rounding and to ensure that the student is producing both the /r/ plus the vowel.
- Remediate only the misproduced /r/ controlled vowel and word position in need.
- Use phonetically consistent treatment materials for production training of the /r/ controlled vowel and word position in need.

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## Elicitation Techniques

- Use their success in one word position to help shape the other misarticulated word positions. Use the whisper technique.
- E.g. Student can say *Archie* and *barn*, but not *star*. Instruct student to say the word *bar*> and whisper the final /n/.
- Prompt with placement/manner cues, visual teaching tools.
- Elongate the /r/ controlled vowel (e.g. /ar/) to ensure that both the vowel plus the /r/ are being pronounced (2-3 seconds).

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## When to Move onto the Next Sound and/or Word Position?

- Once a word position for that phonetic /r/ is mastered (e.g. Target ar initial until mastery--80% at the phrase and sentence level--then medial ar, then final ar).
- Only after all three word positions are mastered (initial, medial, & final) should the student move on to another vowel combination (e.g. or).

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## Techniques for Shaping an approximated /r/ production

- Educate the student about the /r/ variations that they can say (show them their screening results).
- Instruct student to say one of the /r/ words that he can say and ask what their tongue is doing.
- Put the glottal /h/ sound preceding and following the /r/ sound (e.g. her hat).

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## Approximated Productions cont...

- A production that is initially accepted during the evaluation process is refined during the treatment process as the musculature and auditory system improves.

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## Benefits of Using /r/'s That The Student Can Say

- Mental/kinesthetic practice facilitates learning.
- Demonstrates to the student that he/she can say /r/ which increases motivation.

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## Use Successfully Produced /r/'s to Produce Other /r/'s

<ul style="list-style-type: none"> <li>• Example: Correctly produced /ar/ final</li> <li>• <i>Car</i> &gt; <i>art</i> (elicit initial /ar/) cart (elicit medial /ar/)</li> </ul>	<ul style="list-style-type: none"> <li>• Example: Correctly produced /air/ final</li> <li>• <i>Fair</i> &gt; <i>air</i> (elicit initial /air/)</li> </ul>
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## Facts About /er/

- /er/ is part of the other /r/ controlled vowels
- 2 ways to teach the /er/ sound

*Retroflexed or Retracted*

Either way is fine.


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## Retroflex vs. Retracted

- You can use either approach. If student is unsuccessful with retroflex /r/ even after you have tried various techniques, then you may want to introduce the retracted /r/.


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## Techniques to Elicit "er" continued

- Growl saying "Ker" and "Ger".
- Crow like a rooster.
- Instruct student to position high, wide and close.
- EUREKA


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## Techniques to Elicit /er/

- Alternate with: her hat, hat her; /er/, /ar/, /ar/, /er/.
- Listen to which /er/ word position they are more successful with (e.g. /er/ medial stressed). Practice these, alternate with drills if you need to.
- Note: Some words within /er/ medial stressed may be easier to produce due to co-articulation (e.g. hurdle vs. purse).
- If the can successfully produce initial /r/ blends, you can try to elongate the blends.

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## Evaluation Tips

- Evaluate the 21 types of /r/ + initial /r/ blends.
- Did the student produce any correct /r/ variation (s) or word position? 1= stimuable 0= incorrect production
- Could the student produce any of the /er/ variations?

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