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Accent Management: Approaches, Evidence, and Outcomes

Alison Behrman, PhD, CCC-SLP

Amy Neel, PhD, CCC-SLP

Moderated by:

Amy Natho, MS, CCC-SLP, CEU Administrator, SpeechPathology.com



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Accent Management Approaches, Evidence, and Outcomes

Amy Neel, PhD, University of New Mexico

Alison Behrman, PhD, Lehman College/City
University of New York

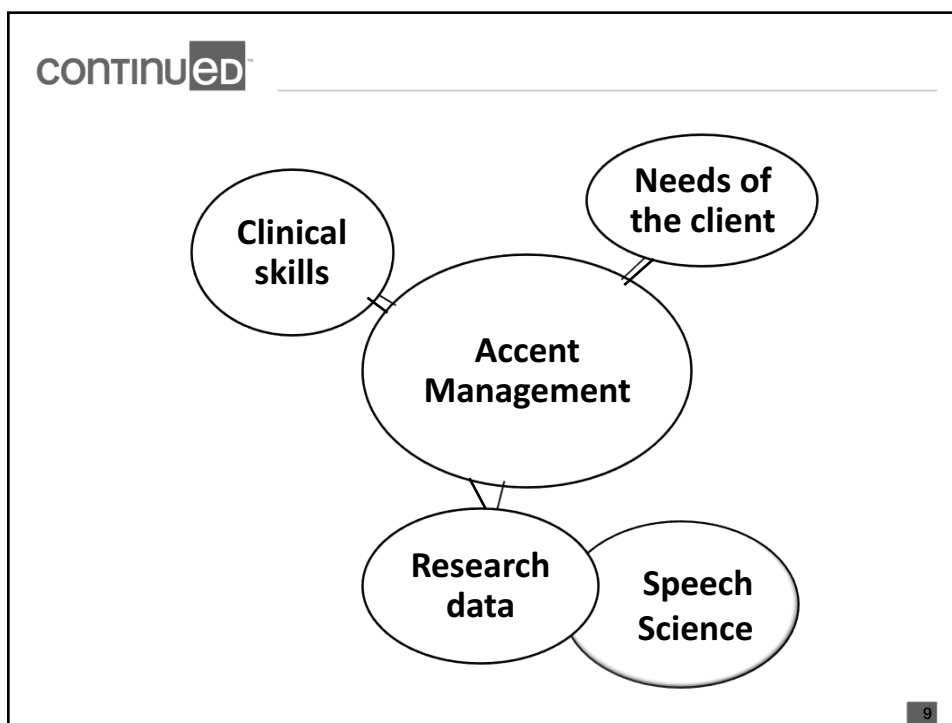


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Course Objectives

After this course, participants will be able to:

- Describe major theories and evidence regarding accented speech and its management.
- Explain the relationship between intelligibility, ease of understanding, and accentedness.
- Describe appropriate diagnostic methods and treatment techniques to address the needs of clients with accented English.



continued™

Accentedness, Intelligibility, and Ease of Understanding, and Their Role in Treatment Planning

Amy Neel, PhD
University of New Mexico

NM
DEPARTMENT OF
SPEECH & HEARING
SCIENCES

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What is accent?

- "...normal consequence of late second language acquisition."
 - Flege, Munro, & McKay (1995)
- "... a set of dynamic segmental and suprasegmental habits that convey linguistic meaning along with social and situational affiliation."
 - Moyer (2013)

Accented English arises from

- Differences in phonetic inventories
- Differences in phonotactic constraints
- Differences in phonological rules
- Differences in stress and rhythm
- Differences in intonation

Segmental differences

- Phonemes shared by English and Japanese
- Phonemes not present in Japanese

	Bilabial		Labiodental		Interdental		Alveolar		Post-alveolar/Palatal	Velar		Glottal
Stop	p	b					t	d		k	g	
Fricative			f	v	θ	ð	s	z	ʃ	ʒ		h
Affricate									tʃ	dʒ		
Nasal		m						n			ŋ	
Liquid							l, ɭ					
Glide			w						j			

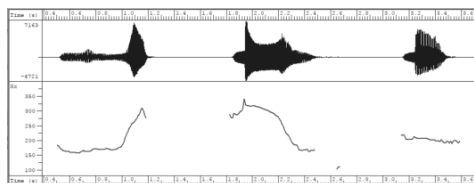
Franklin, A., & McDaniel, L. (2016). Exploring a phonological process: Approach to adult pronunciation training. *American Journal of Speech-Language Pathology*, 25(2), 172-182.

Segmental differences

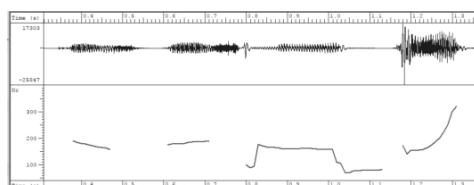
- [ASHA Phonemic Inventories Across Languages](#)
- [George Mason University Speech Accent Archive](#)
- [Interactive IPA Chart](#)

Suprasegmental differences

Chinese
tones



English
intonation



Created in WASP (Mark Huckvale)

Perceptual measures (global)

- Accentedness
- Intelligibility
- Comprehensibility (ease of understanding)

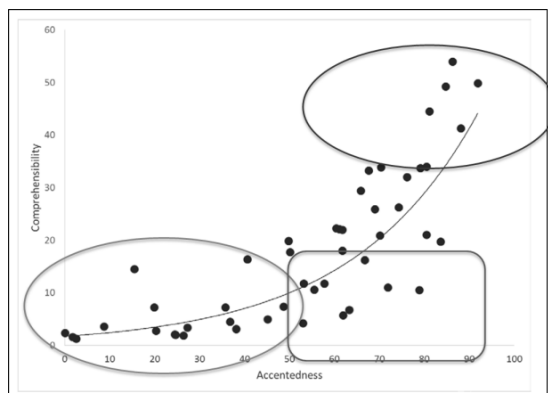
*Native/easy to
comprehend = 0*

*Non-native/hard to
comprehend = 100*

Trofimovich, P., & Isaacs, T. (2012). Disentangling accent from comprehensibility. *Bilingualism: Language and Cognition*, 15(04), 905-916.

Saito, K., Trofimovich, P., & Isaacs, T. (2016). Second language speech production: Investigating linguistic correlates of comprehensibility and accentedness for learners at different ability levels. *Applied Psycholinguistics*, 37(02), 217-240.

Accentedness and comprehensibility

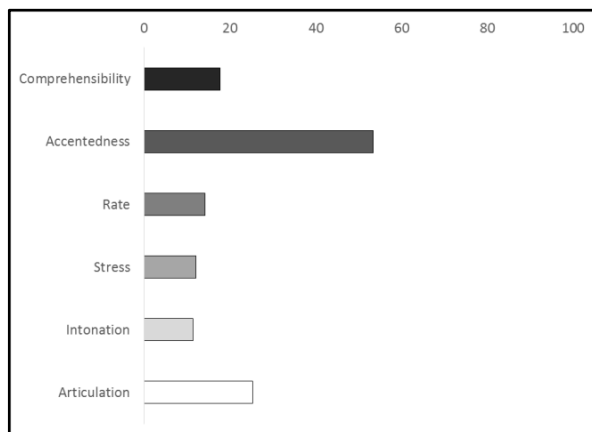


Neel, A., & Long, E. (2015, November). Listener profiles of accented English speech. Talk presented at the American Speech-Language-Hearing Association Convention.

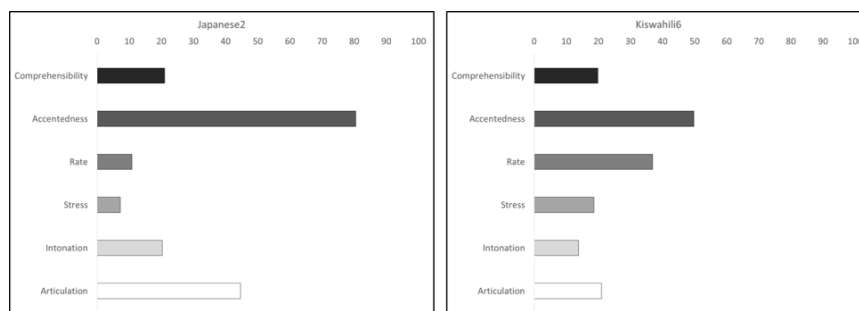
Perceptual measures (specific)

- Rate
- Stress
- Intonation
- Articulation

Perceptual profile (48 speakers)



Individual profiles



continued™

Therapeutic Approaches to Accent Management

Alison Behrman, PhD, CCC-SLP
Lehman College/City University of New York



continued™

Segmental and Prosodic Targets

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Contrastive analysis of L1 and L2



the speech *accent* archive

Weinberger, Steven. (2015). *Speech Accent Archive*. George Mason University. Retrieved from <http://accent.gmu.edu>



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Phonemic Inventories Across Languages

<http://www.asha.org/practice/multicultural/Phono/>

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Segmental Level - Consonants

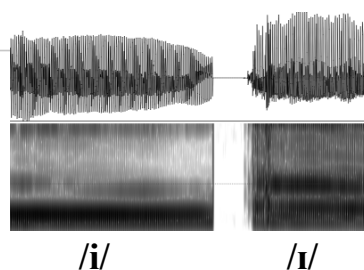
Approaches to training segmental targets

- Articulation
- Phonological
 - Final consonant deletion
 - Cluster reduction
 - Epenthesis
- Diagnostically, what segmental level errors contribute the most to impaired communication?

Franklin and McDaniel (2016)

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Segmental Level – Vowels



Acoustic cues of vowels:

- Formant frequencies
- Duration

Cue Weighting: relative importance of specific acoustic cues in phoneme perception

Kondaurova and Francis, 2008; Wang and Munro (1999); Williams and Escudero (2014)

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Selecting segmental targets

- What impacts intelligibility the most?
- What bothers the client the most?
- Common nonnative errors may not impact listener understanding significantly
 - /ɔ̃/ /r/

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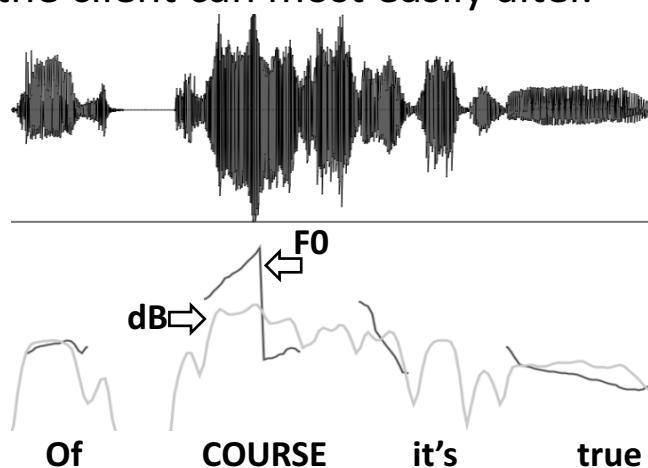
Prosodic Level

Three *main perceptual features* (and their acoustic correlates)

- Intonation (F0 variation)
 - Timing (duration and pause)
 - Loudness (intensity variation)
- Syllabic Stress
 - Phrase Prominence
 - Rhythm

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Capitalize on the aspect of prosody that the client can most easily alter.



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Prosodic targets must be contextually appropriate.

- Assign intent to the statement
 - Emotion
 - Say it with surprise, doubt, etc.
 - Emphasis
 - “I hear it’s pretty there.” “Yes, it’s really beautiful.”
 - Clarification
 - “The seminar is on Thursday, right?”
- Conversational practice

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Session structure for segmental and prosodic targets

- Short explanation of each target
- Focused auditory stimulation
- Auditory discrimination training
- Production training

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Perception–Production Controversy

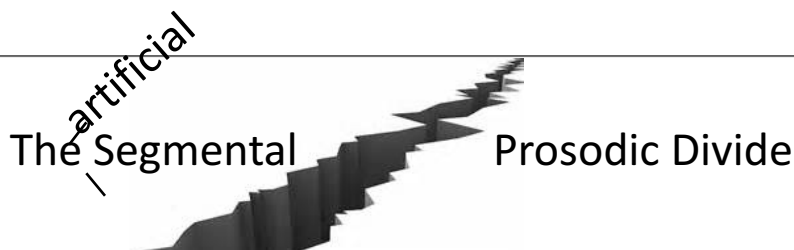
1. Is perceptual knowledge a prerequisite for production?
2. To what extent does perceptual training carry over to production training?
3. To what extent is it possible for L2 speakers to learn new perceptual distinctions?



Refuting Data

Supporting Data

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- Increased aspiration on release of plosive in stressed syllable
- Changes in VOT as a function of stress and intonational phrase location

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What is the EVIDENCE FOR TREATMENT OUTCOMES?

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Most evidence is based upon classroom
ESL studies

- Barb (2005) 15 students
- Derwing and Rossiter (2003) 48 students
- Derwing et al. (1998) 3 classes of 16 students each

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Comparative study of segmental and prosodic approaches

- Purpose: determine the effect of segmental and prosodic training
- Single case experimental design
- 4 adult L2 English/L1 Hindi talkers
- Remote delivery

Behrman, A. (2014) Segmental and prosodic approaches to accent management. *American Journal of Speech-Language Pathology*, 23, 546–561.

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Findings

- Both segmental and prosodic training resulted in decreased accentedness and increased ease of understanding.
- Segmental training did not appear to influence prosody, and vice versa.
- One type of training did not appear to have a stronger effect than the other.

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Clear Speech

Accent Management

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Clear Speech (Hyperarticulation)

Clear speech is a speaking style used to enhance intelligibility in adverse listening conditions.

- Speak clearly
- Overenunciate
- Talk to someone with a hearing loss

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Effects of **clear speech**

- Rate: Decreased rate of articulation, increased vowel duration, and longer and more frequent pauses
- Increased acoustic vowel space area, extent of formant movements
- Increased intensity and consonant power
- Kinematics: larger and longer movements

(Ferguson & Kewley-Port, 2002; 2007; Ferguson et al. 2010; Ferguson & Quené, 2014; Picheny et al., 1986; Matthies et al., 2001; Smiljanić & Bradlow, 2005; Tasko & Greilick, 2010; Uchanski, et al., 1996)

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In monolingual speakers:

Increased intelligibility was achieved with the use of clear speech, when compared to conversational speech

- Background noise
- Listeners with Hearing impairment
- Speakers with Dysarthria

(Ferguson, 2004; Ferguson & Kewley-Port, 2002; 2007; Ferguson & Quené, 2014; Payton et al., 1994; Park et al., 2016; Uchanski et al., 1996)

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Study of Clear Speech in Accent Management

- Purpose: determine the benefit of training clear speech in nonnative speakers
- Single case experimental design (SCED)
- 6 adult L2 English/L1 Spanish talkers
- 30 monolingual (American English) listeners

Behrman, A. (in press). A clear speech approach to accent management. *American Journal of Speech-Language Pathology*.

Also see: Rogers et al., 2010; Smiljanić & Bradlow, 2005)

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Results

Comparing clear speech findings of this study to addressing segmental and prosodic difference (Behrman, 2014):

- Ease of Understanding: larger effect size obtained for clear speech
- Accentedness: smaller effect size obtained for clear speech

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Why use **clear speech** if it doesn't result in more native-sounding speech?

- In the workplace and other contexts, ease of understanding may be more important than accentedness to many listeners.
- Accentedness does not always predict intelligibility or ease of understanding.

(Behrman, 2014; Derwing & Munro, 2009; Smiljanić and Bradlow, 2011)

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Using **clear speech** in accent management

- Clear speech may provide L2 speakers with the ability to code switch to achieve increased understanding.
- To obtain benefits, may require multiple session training in clear speech
- Outcome goals should be discussed carefully with accent management clients.

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Clear Speech protocol overview

- Review home practice material
- Speech production practice
- Assign new home practice material

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Clear speech protocol

- First session: gain buy-in on clear speech
- Initial elicitation with rote phrases
- SLP uses continual modeling
- Prompts
 - Regular = 100 Clear = 200
 - Use more effort to be clear / be more intentional with your speech/ work harder to be clear

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Clear speech protocol

Sessions two through five:

- Decrease use of clear speech model
- Minimize reading
- Address prosody

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Most common client errors

- Insufficient effort
- Rapid fall off at phrase endings
- Flattened prosodic contour
- Forgetting to use clear speech intermittently

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Home practice of clear speech

- Twice each day, use high effort clear speech for 2 minutes while:
 - Reading aloud
 - Speaking aloud
- Use clear speech in actual conversation for 25% of total daily talking time
- Keep a daily log of experiences with clear speech

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Take-home message

For increased communicative competence

- Focus upon accent reduction may not be the only or even the optimal approach
- Code-switching to clear speech may be appropriate

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A few other helpful hints . . .

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Increase client awareness of the communicative environment

Accented speech is more difficult to understand for listeners

- in noise
- with hearing loss
- who are older
- unfamiliar with the accent
- unfamiliar with the specific speaker

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continued™

Uhm . . . decrease use of fillers

Replace fillers with a brief pause

- Pause at all punctuation
- Connect the pause to a quick catch-breath
- Exaggerate the pause at every period

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Accent Management *The long view*

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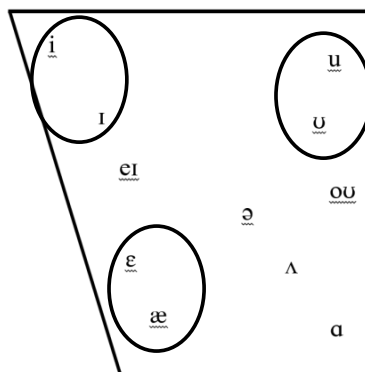
Acoustic tools for biofeedback

- Non-invasive, inexpensive techniques for displaying speech behavior



Vowels

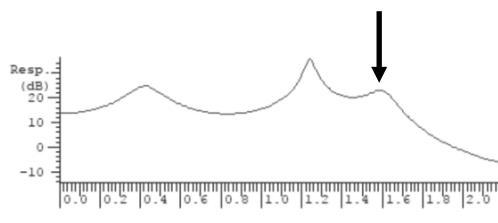
- Sonamatch (KayPentax)
- VowelViz
- Dr. Speech



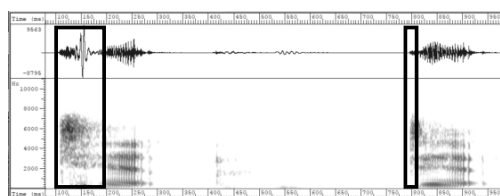
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Consonants

Amplitude spectrum
for /r/ - low F3

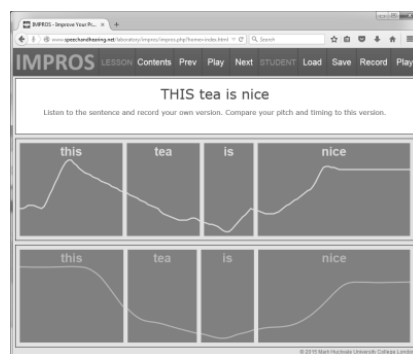


Voice onset time
differences for /t/ and /d/



continued™

Suprasegmentals



continued™

Useful, free acoustic software

- WASP
- RTSpect
- AmPitch
- IMPROS

- Mark Huckvale, University College London

Q&A

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