

# CULTURALLY INCLUSIVE EDUCATION FOR THE **SPEECH SCIENCES**

## ALLOPHONIC VARIATIONS IN ENGLISH

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# OUTLINE

## ALLOPHONES

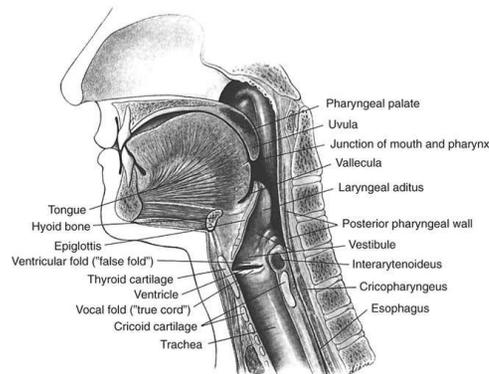
- Definition
- Examples in American English
- Cross-language considerations

## ACCENT MODIFICATION

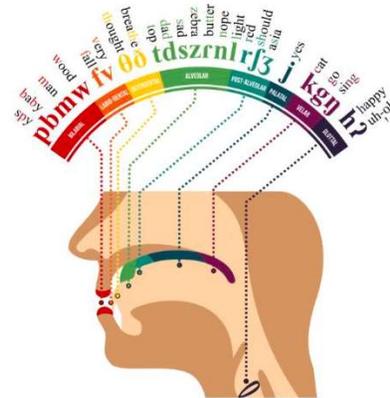
- Role of a speech-language pathologist
- Allophones and phonemic inventories
- Patient reports



# PREREQUISITE KNOWLEDGE



**SPEECH ARTICULATORS**



**PLACE OF ARTICULATION**

[k<sup>h</sup>]

**PHONEMES, IPA,  
and DIACRITICS**



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# What is an allophone?



# Allophones

- Allophones are variations in production of a single phoneme that do not create contrast
- Allophonic variation for a phoneme is often missed in broad transcription (i.e., / /)
- Narrow transcription (i.e., [ ]) can include added diacritics that help us to describe the sound in more detail



"cool"

Broad: /ku/

Narrow: [k<sup>h</sup>u]

# Why do Allophones Exist?

- Phonemes are not produced in isolation
- Phonemes are influenced by the phonemes surrounding them
- English is a rule-based language, in which phonemes are produced certain ways based on their word location



# Examples of Allophones

- /t/
  - "Tip"
  - "Hut"
  - "Little"



# Examples of Allophones



## • /t/

- "Tip"
  - Voiceless stops are aspirated at the beginning of a syllable
- "Hut"
  - Voice stops are unaspirated at the end of a word
- "Little"
  - Midvocalic /t/ becomes an alveolar tap

- [tʰ]

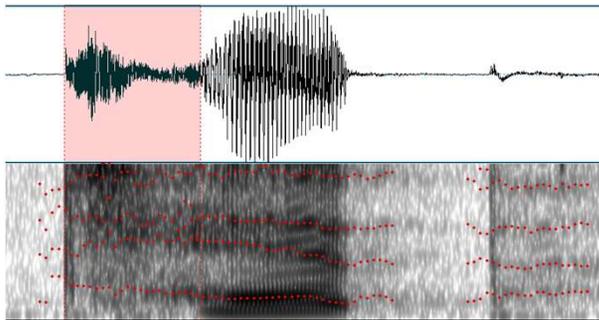
- [t̚]

- [ɾ]



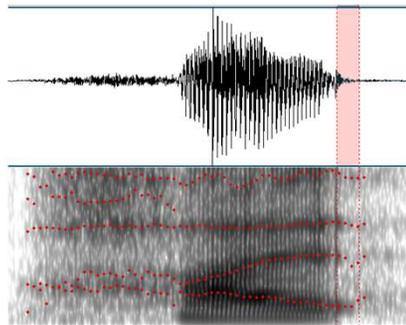
# Seeing Differences

[t<sup>h</sup>]



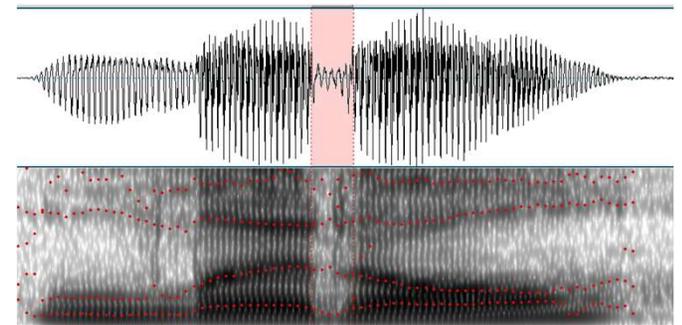
"tip"

[t<sup>ʰ</sup>]



"hut"

[r]



"little"



# Allophones in Other Languages

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- Other languages have allophones too
  - Spanish does not distinguish between the /b/ and /v/ phonemes
- Some allophones in American English are not allophones in other languages
  - In some dialects of Hindi, there are contrasts between aspirated and unaspirated plosives
  - [kap<sup>h</sup>i] "coffee" and [kapi] "copy" are two separate words and only vary by plosive aspiration





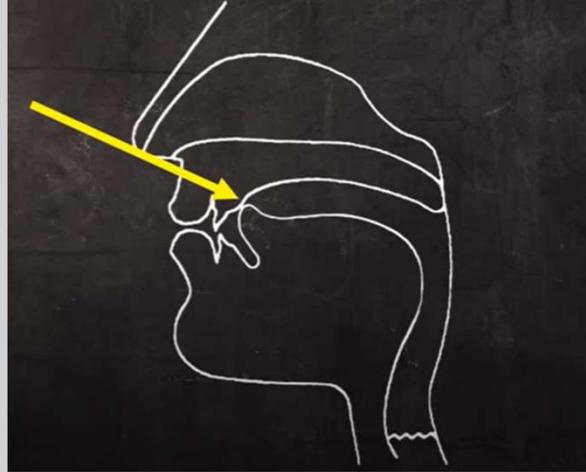
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**Using our  
knowledge of  
allophones to help  
others  
communicate**



# Using Allophones: Example

Spanish trilled [r]



<https://www.youtube.com/watch?v=joVgJUO74Mg>

**American  
English /ɹ/**

Voiced, alveolar  
approximant



**Spanish  
Trill /r/**

Voiced, alveolar  
trill



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# Accent Modification



"An elective service sought by individuals who want to change or modify their speech.

Individuals seeking accent modification services represent various unique cultural and linguistic backgrounds and experiences."

-ASHA-

*Practice Portal*



## Personal

- Relationships

## Work

- Acquisition
- Promotion

## Social

- Isolation
- Networking



*Quality of life*



**Reasons  
people seek  
services**

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## Should someone be required to modify their accent?

Accent modification has been criticized because it perpetuates the idea that some accents are “wrong” and that the person needs to assimilate into the mainstream way of speaking.

One way SLPS can overcome this problem is by...?



Example:

- Pat , Bat
- Tan, Dan
- Coat, Goat



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# Modifying Allophones

- Sometimes we need to address allophones to improve intelligibility
- Example: Farsi does not have the same contrasts for voiced and voiceless plosives as in American English



## Case Study: Sample Evaluation Results



Native Language: Turkish

Consonant Sound Errors	Initial Position (% correct)	Medial Position (% correct)	Final Position (% correct)
“r” /r/	75%	82%	N/A
“zh” /ʒ/	N/A	100%	0%
Voiceless “th” /θ/	50%	50%	0%
“f” /f/	100%	50%	100%
Voiced “th” /ð/	0%	0%	N/A
“v” /v/	0%	100%	100%
Vowel Sound Errors	Initial Position (% correct)	Medial Position (% correct)	Final Position (% correct)
“u” /ʊ/	N/A	0%	N/A
“uh” /ə/	50%	100%	100%
“uh” /ʌ/	N/A	75%	N/A
“ee” /i/	N/A	75%	100%
long “o” /ɔ/	N/A	100%	0%
short “i” /ɪ/	N/A	86%	N/A
“ah” /ɑ/	100%	67%	N/A
“er” /ɚ/	N/A	100%	67%



## Sample Goals

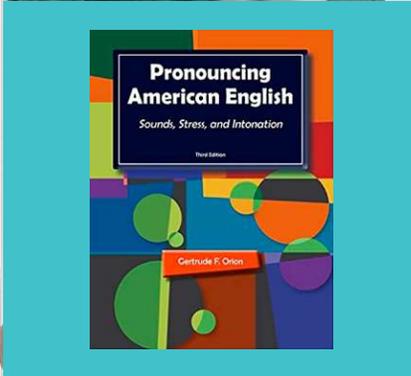
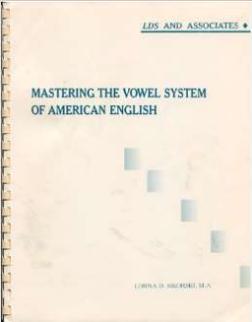
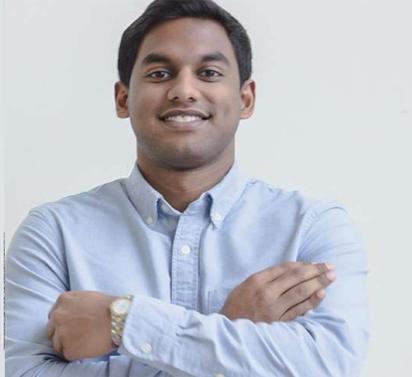
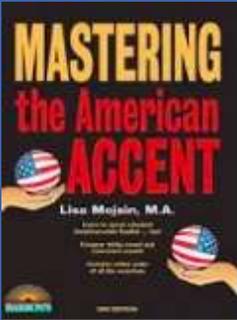
- Goal 1: The client will correctly produce all syllables in multisyllabic words at the word, sentence, and conversation level with 90% accuracy independently in order to increase conversational intelligibility.
- Goal 2: The client will correctly produce the following sounds in isolation, and all positions of words, phrases, sentences, and conversation with 90% accuracy independently in order to increase conversational intelligibility: voiced and voiceless "th", "zh", /f/, /d/, /w/, /v/, the short "i", "u", "o", "uh", and /a/.



- Goal 3: The client will complete tasks of intonation and contrastive stress with 90% accuracy independently in order to increase conversational intelligibility.
- Goal 4: The client will verbally produce fewer than 10 episodes of epenthesis independently during 5 minutes of spontaneous conversation or reading of a structured passage.



# Treatment Tools



"Even though I speak fluent English I always lacked communication with people. They kept asking "I beg your pardon", "what did you say"...I was self-confident that my English is very good and I was in denial of my weakness in speaking skills. To speak English one needed to speak slowly and clearly and I was speaking my native language also fast. I came to terms with myself that I was not a great English speaker. I wanted to give a try to improve and speak like an American. I knew the way I speak it would be impossible to speak like Americans but it would be possible to speak clearly so that they would not make me repeat myself.

Since I started therapy I speak with more care and attention to my speed of speech and the way I pronounce words and sounds. It makes a huge difference. I am speaking slowly and clearly. One should not say more words to get understood. It is a continuous effort. English is not my native language and I know I need to be more careful when speaking. It is like wearing a new jacket. I get ready to use the skills I gained in the sessions. I got out of my comfort zone. Also when I am speaking English and I pay more attention to the sounds I have been struggling with. I am speaking slowly and clearly. I don't hear anyone saying excuse me which is a huge relief and boosts my self-confidence."

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Native speaker of Turkish



"I have been teaching one course for many semesters. The materials of the course are very technical in nature. Overtime, I have known the materials extremely well. Besides I know a decent amount of vocabulary and my written English is strong. However, my teaching evaluations for that course have been improving, but not that good. I looked at the teaching evaluation of the fall semester of 2017, it was not that good. The item "The instructor communicated clearly" was just 4.8 out 7. Then I looked back the evaluation of the same item from previous semesters, it has been consistently lower than 5 though all of my other items can reach much higher. I read the "Comments on instructor's communication" carefully for all my teaching evaluations, with the aim to find what has been going wrong. The common themes are that "I have strong accent, and it is difficult to understand me." That is when I realized that my accent is the bottleneck of my teaching effectiveness. I decided that I need to seek professional help."

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Native speaker of Mandarin



"The accent reduction program has helped me in many ways:

- It has improved my English pronunciation and increased my confidence in public speaking.
- From teaching perspective, the accent reduction program has improved my communication and intelligibility. There is less concern and feedback from students about not being able to understand me. I have become more confident and start to enjoy teaching. I feel more comfortable to be spontaneous at teaching when moments come up.
- Improved communication and intelligibility have help my professional development. I was approached for some leadership positions in our profession back in 2020 spring, right before the pandemic. I was nervous at the beginning as that position involved frequent communications with many people and involved public speaking. We kind of worked together and prepared for those situation. I was able to do the job at a level that I was approached for another term, and later was even tapped to be in a senior leadership position in our organization.
- Along the way, I have learned a lot about mindfulness, American cultures, sports, foods and recipes, holidays, movies, poems, lyrics, animals, and current events. This has helped me to carry and relate to others in casual conversation."

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Native speaker of Mandarin



Accent modification is an elective speech-therapy service that can help clients improve quality of life.

Knowledge of phonemic inventories and allophonic variations can help SLPs target specific speech sounds during therapy.



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# THANK YOU

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