

# IOWA STATE UNIVERSITY

Applied Linguistics & Technology

## Technology for Pronunciation Instruction: From Research to Practice

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# The disconnect

- Teachers want activities that seems to work.
- Researchers are interested in why, and to what extent an activity seems to work.
- There are many ways to connect research and practice, and here are some of them... →

# Sounds of Speech – U of Iowa

UNIVERSITY OF IOWA  
SOUNDS OF SPEECH 3.0

SOS2019

**Sounds of Speech**  
english

Phonetics: The Sounds of American English

consonants — **manner** place voice vowels — monophthongs diphthongs

stop fricative affricate nasal liquid glide

fonetiks anatomy feedback

**Manner** of articulation refers to how the sound is produced and the way in which the airstream is modified as it passes through the vocal tract.

Choose one of the buttons in the second row to see the list of sounds for that category.

video area

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consonants — manner — place — voice — vowels — monophthongs — diphthongs

stop — fricative — affricate — nasal — liquid — glide

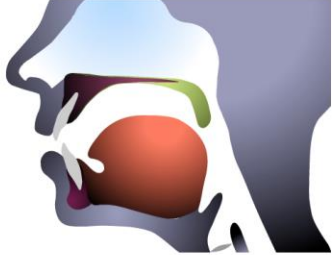
**Nasal**


Voiceless — Voiced



☒ /m/ Bilabial

☐ /n/ Lingual-velar


☐ /ŋ/ Lingual-velar





/m/  play


 animation with sound  step-by-step description

fonetiks anatomy feedback

/m/ 

 mask

 amount

 calm

# Sounds of Speech – U of Iowa



Sounds of Speech

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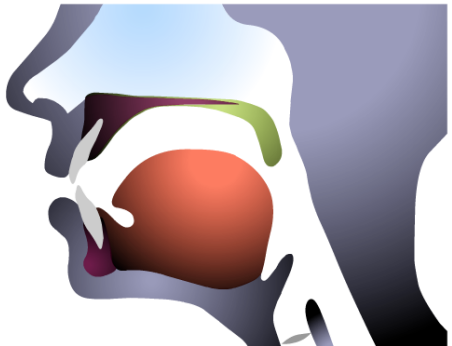
front central back


**Front Vowels**



/i/ /ɪ/

/e/    /ɛ/

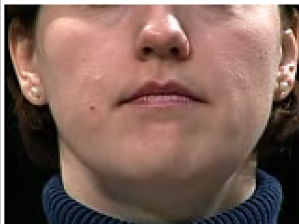
/æ/    /a/





/ɪ/  play


☒  animation with sound ☐  step-by-step description

fəˈnetiks anatomy feedback



/ɪ/ 

 invite

 pin

# Results from Research

- Carey (2004): visual representations of vowel space and mouth movement resulted in improvement of production for the target vowel.
- Kartushina et al. (2015): training with visual articulatory feedback containing acoustic information about tongue position and mouth openness was effective in improving the production accuracy of target vowel production.
- Suemitsu et al. (2015): visual input enhances learning.

# English Accent Coach



# English Accent Coach

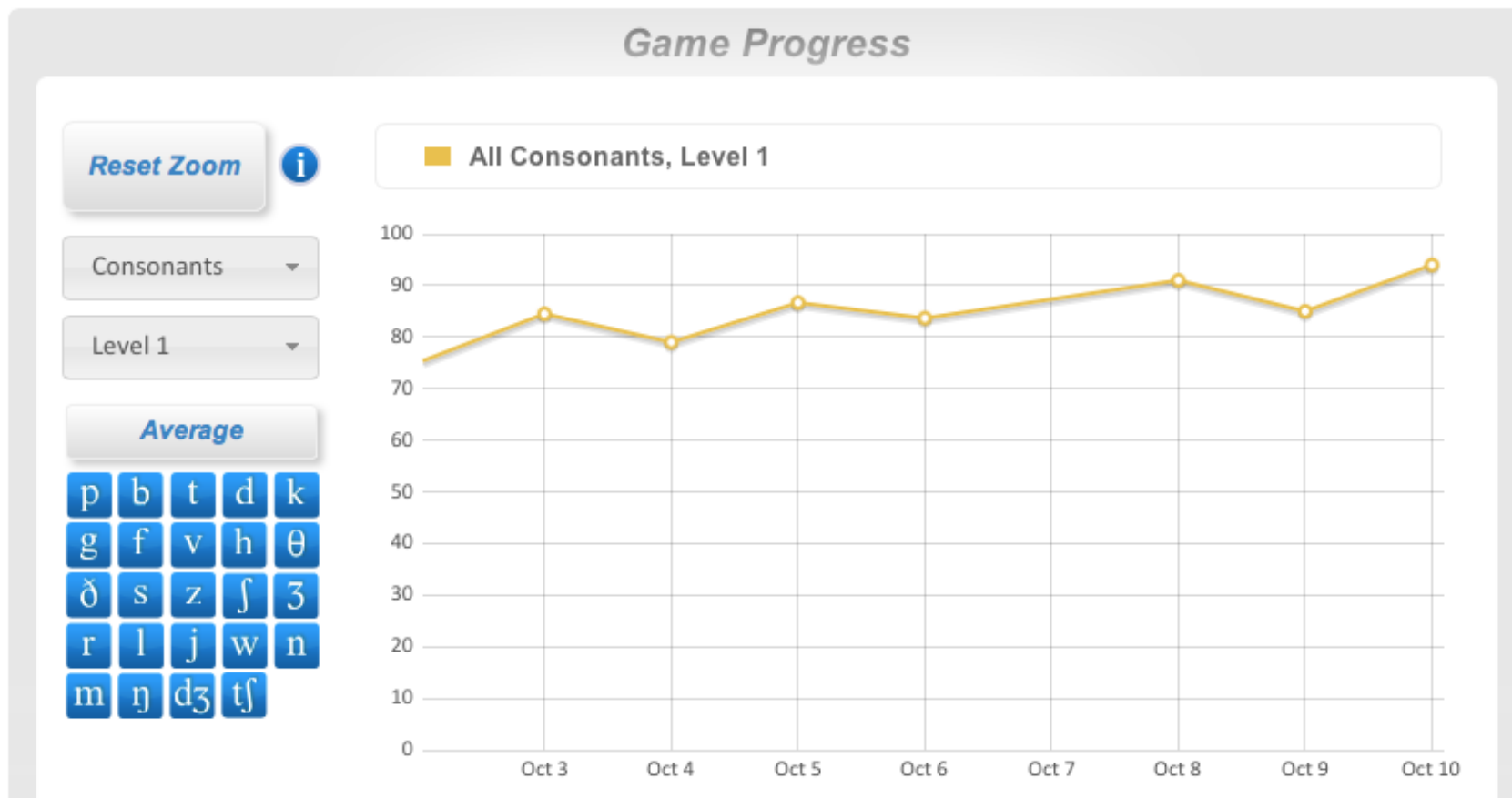




# English Accent Coach



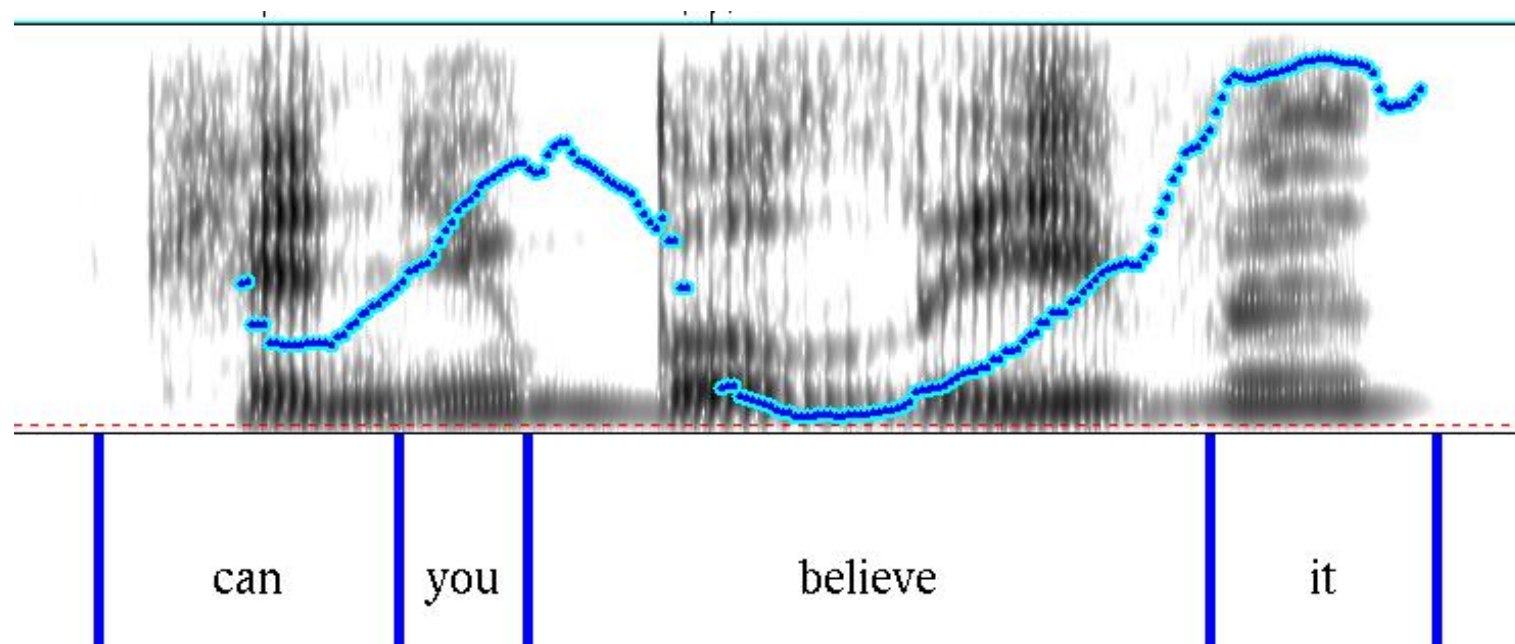
# English Accent Coach



# Results from Research

- HVPT works → increasing the variability of the input results in greater and more generalizable gains in L2 speech perception (Thomson, 2011).
- EAC works (Thomson, 2011)
  - incorporating a research-based technique into a CAPT application.

# Praat



# Results from Research

- Hardison (2004):
  - training to improve prosody using a real-time computerized pitch display and native-speaker utterances as feedback → resulted in significant improvement.

# ASR as feedback

- Using existing Automatic Speech Recognition software for generating feedback:
- Siri, Google Assistant, Cortana, etc:
  - Learner speaks to the software
  - ASR writes what it heard
  - Learner uses it as feedback

# Results from Research

- McCrocklin (2014):
  - Learners generally had positive reactions to working with ASR
  - This type of learning resulted in increased learner autonomy
  - Found to be useful, convenient, and fun by learners → increased motivation.
- Guskaroska (forthcoming):
  - Improvement for vowel contrasts.

# A Resource for Teachers

- Pronunciation for Teachers: meant to provide professional help and resources for those interested in teaching pronunciation in all educational contexts.
- [pronunciationforteachers.com](http://pronunciationforteachers.com)



# A Resource for Teachers



# Conclusion

- Teachers should take advantage of already available software to enhance pronunciation learning in their classrooms.
- Teachers should take advantage of available research in order to know the best ways to use technology for pronunciation learning.
- Help bridge the gap!

# Thank you!

- QUESTIONS?