

Accommodating Learning Styles: An EFL Pronunciation Course for Science and Engineering Students

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Overview

- Background
 - Autonomy and External Learning
 - Science and Engineering Students
 - Pronunciation needs
 - Learning styles
- Course Description
- Sample Work
- Discussion



Learner Autonomy

- "Autonomy is ... the ability to take charge of one's own learning." (Holec, 1981, p. 3)
- Crucially involves ...
 - Determining goals
 - Deciding how to reach the goals
 - Measuring progress
- Cf., Learner Strategies (Wenden & Ruben, 1987; Wenden, 1991)

Autonomy and External Learning

- Emphasis on collaboration and negotiation in autonomy research in 1990s (Benson, 2001)
 - Focus on autonomy in the educational context
- In 2000s, call for more attention on autonomy outside the educational context.
 - "Continuing learning" (Harmer, 2001)
 - "External learning" (Field, 2007)

S&E Students: Pronunciation Needs

- Large proportion become engineers and managers.
- Will use English as lingua franca.
- Need speech comprehensibility (for int'l audience)
 - Consistent, recognizable speech accent
 - Mastery of pronunciation of technical jargon

S&E Students: Learning Styles

- High math and physics aptitude
- S&E learning style dimensions (Felder and Brent, 2005; Felder and Silverman, 1988)
 - Sensory – Intuitive
 - Inductive – Deductive
 - Visual – Auditory
 - Sequential – Global
 - Active – Reflective
- S&E students prefer active, visual, and sensory learning (Kolmos and Holgaard, 2008).

Course Description

- Determining (pronunciation) goals
- Deciding how to reach the goals
- Measuring progress

Autonomy in
Pronunciation
Development

STFE:
The Sound System
of English

Learning
Style

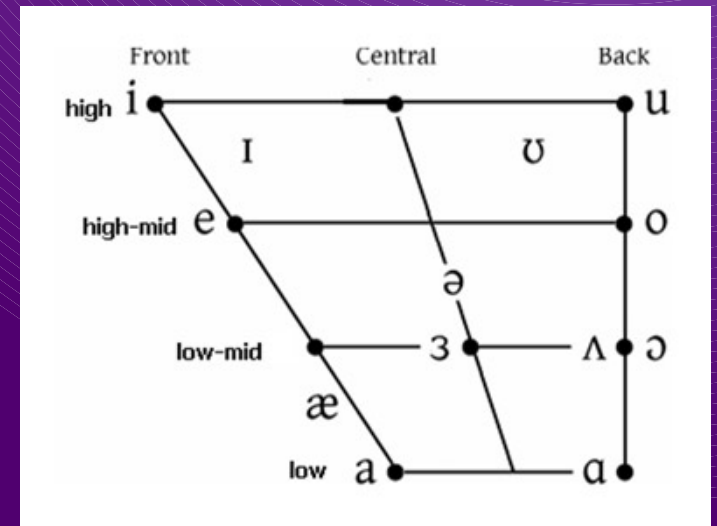
Pronunciation
Needs

Course Objectives

- Understand and be able to talk about the fundamental concepts of (acoustic) phonetics and phonology in English.
- Understand and be able to describe some of the key phonological and phonetic features of the English language in English.
- Use specialized software to measure and analyze acoustic recordings of English speech.
- Design and carry out a small-scale experiment looking at some phenomenon of the English sound system.
- Present findings from the above experiment in English in both oral and written forms.

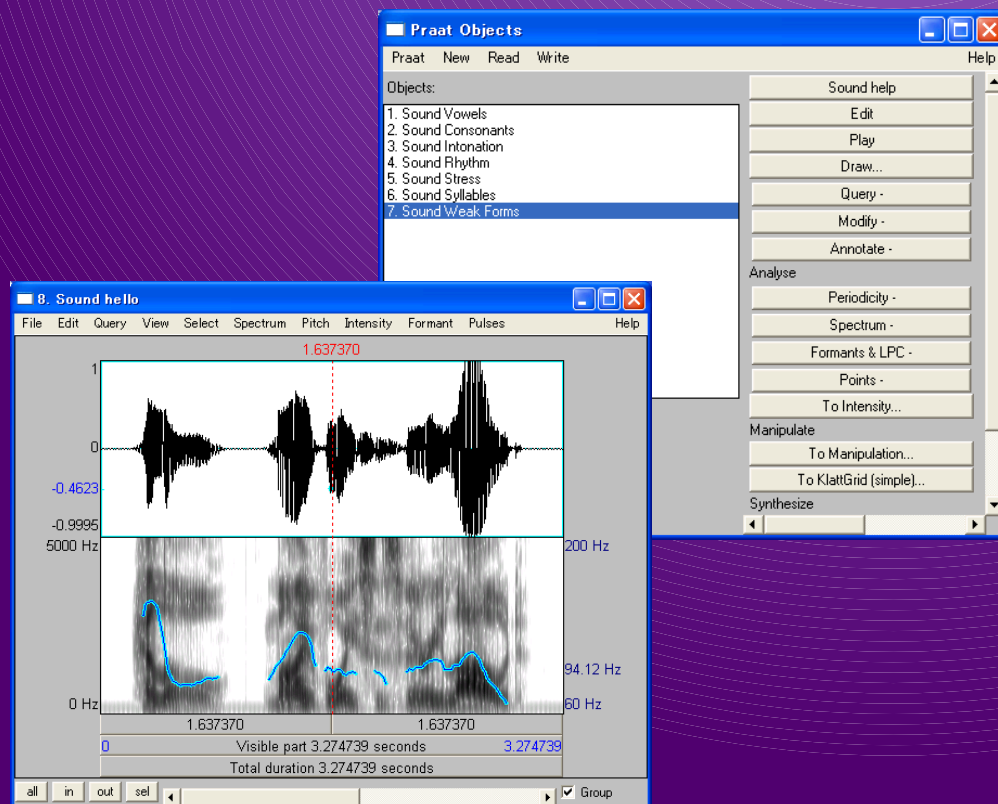
Course Content

- International Phonetic Alphabet
- Fundamentals of acoustic phonetics (e.g., waves, formants, tube model of speech)
- Sound system of English
 - Vowels and Consonants
 - Syllables & Words
 - Stress & Rhythm
 - Intonation



Course Tools

- Praat (www.praat.org)
 - Tool for waveform and spectrographic analysis
 - Freeware
 - Cross-platform
 - Portable
- Provides *electronic visual feedback* (Anderson-Hsieh, 1992)



Course Tools

- Speech Accent Archive at George Mason University (accent.gmu.edu)



the speech *accent* archive

[how to](#) [browse](#) [search](#) [resources](#) [about](#)

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Biographical Data

birth place: brooklyn,
new york, usa ([map](#))
native language: english
(eng)
other language(s): french
spanish
age, sex: 45, female
age of english onset: 0
english learning method:
naturalistic
english residence: usa
length of english
residence: 45 years

english6 Elicitation Paragraph:

Please call Stella. Ask her to bring these things with her from the store: Six spoons of fresh snow peas, five thick slabs of blue cheese, and maybe a snack for her brother Bob. We also need a small plastic snake and a big toy frog for the kids. She can scoop these things into three red bags, and we will go meet her Wednesday at the train station.

Key:
blue = potential areas for this generalization
red = actual areas for this generalization

Phonetic Transcription:

[pʰlɪz kəl stɛlə æːsk ə rə bɪŋ
ðʊz θɪŋs wɪθ hɜː frəm ðə stɔː
sɪks spuːnz ə ʃ frɛʃ snəʊ piːz
fɪv θɪk slæbz əv bluː tʃiːz æn
meɪbi ə snæk fɔː hɜː brʌðə ɹɑ
bʌb wi ɔːlsəʊ nɪd ə smɔːl
pˌlæstɪk sneɪk æn ə bɪg tɔɪ
frɔːg fə ðə kɪdz ʃɪ kʰɛn skuːp
ðiːz θɪŋz ɪntə θɪ red bægz ə
wi wɪl ɡoʊ mɪt hɜː wɛnzdeɪ
ðə treɪn steɪʃən]

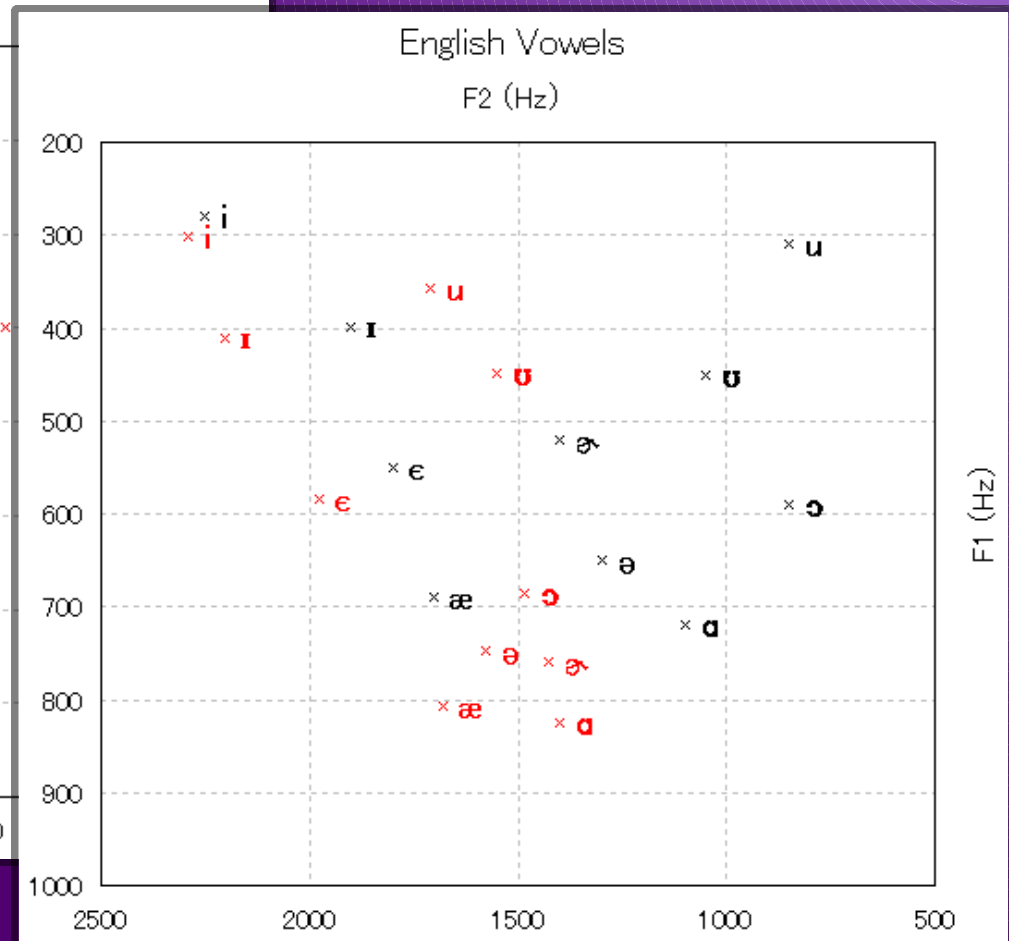
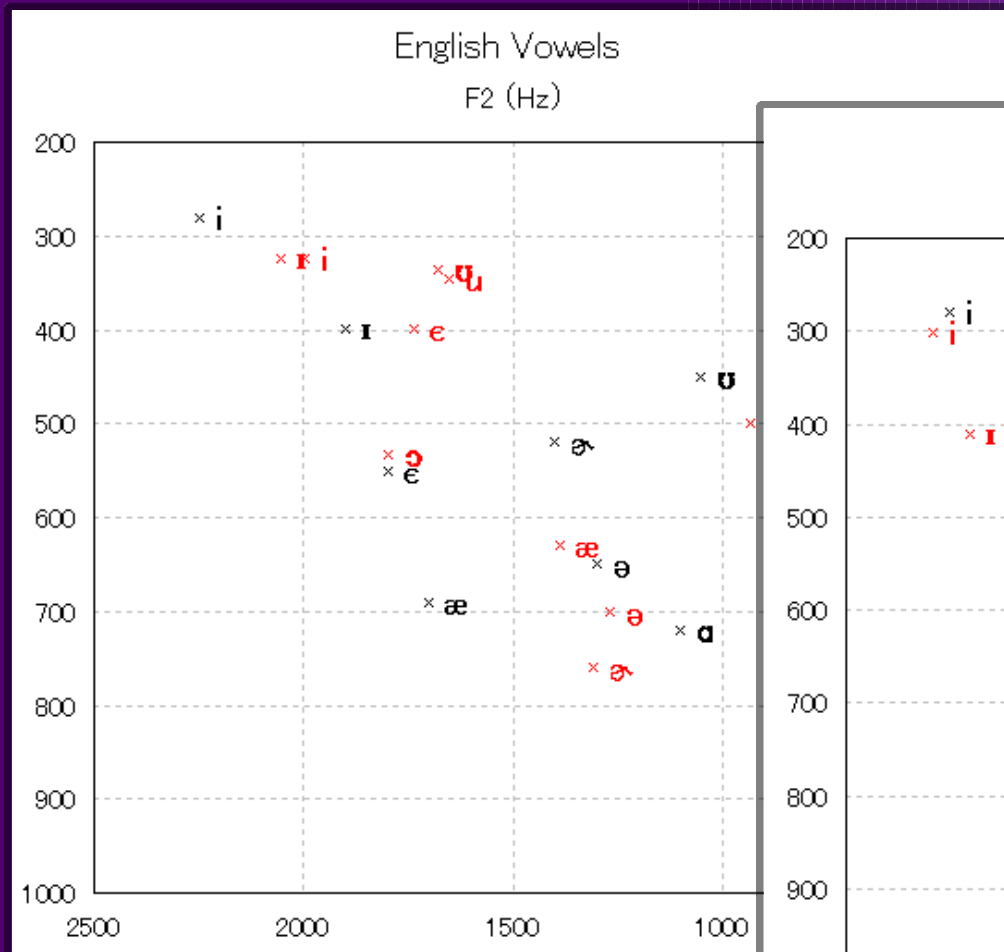
Classroom Activities

- Lectures on content
 - Interspersed with ...
- Tasks
 - Practical confirmation of content
 - Pronunciation diagnostic

Sample Activities

- Stress-timing of English
 - Record poems and look for constancy of stress.
 - Record sentences with additional unstressed syllables and check for constancy of time.
 - CATS EAT MICE.
 - The CAT will EAT the MICE.
 - The CAT will have EATen the MICE.
- Measure and plot vowels in vowel space

Sample Activities

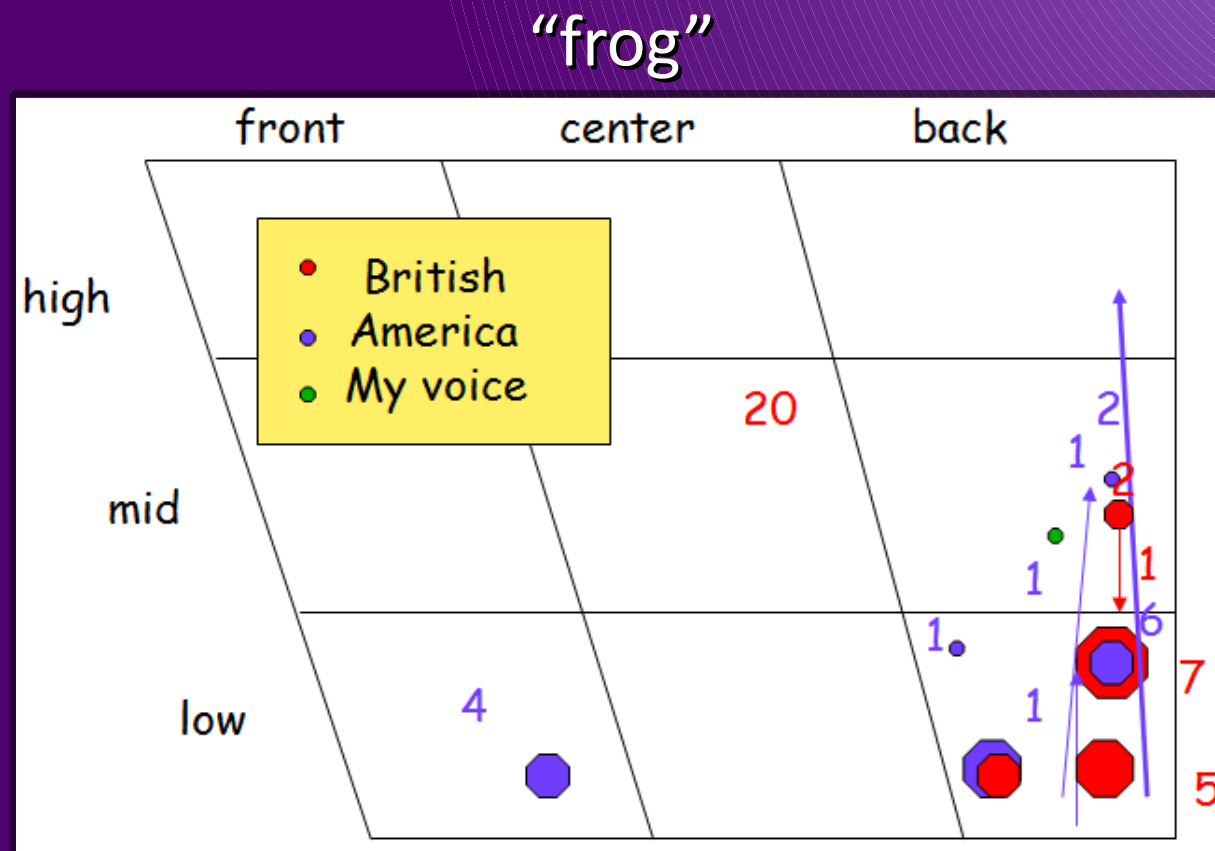


Final Project

- Small-scale research project
 - Interesting feature of English pronunciation
 - Comparative study of English-Japanese pronunciation
- Creation of an individualized program of pronunciation development
- Projects reinforce diagnostic techniques
 - Foundation for future pronunciation development

Sample Final Project 1

- Comparison of vowels in British and American English.



Sample Final Project 2

- "Method to improve my pronunciation"
 - Recording 1 
 - Recording 2 
- Reduction patterns

Discussion

- Student as (applied) linguist
 - "We can train them to be their own language researchers..." (Harmer, 2001, p. 343)
- Limitation: Difficult to adapt to other contexts
 - Computer laboratory
 - Specialist knowledge
- Effectiveness
 - Unknown, as yet
 - Difficult to measure

Summary

- STFE: The Sound System of English addresses S&E students' pronunciation needs by
 - Taking their active, visual, and sensory learning style into consideration
 - Preparing them for external learning
 - Diagnose pronunciation problems
 - Measure progress
- Future work involves measuring effectiveness and facilitating adaptability.

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